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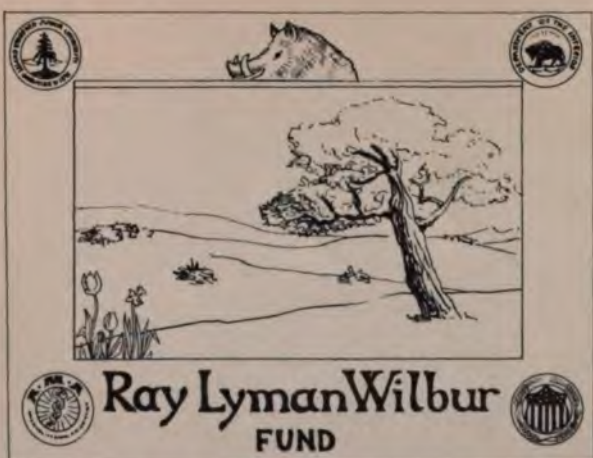
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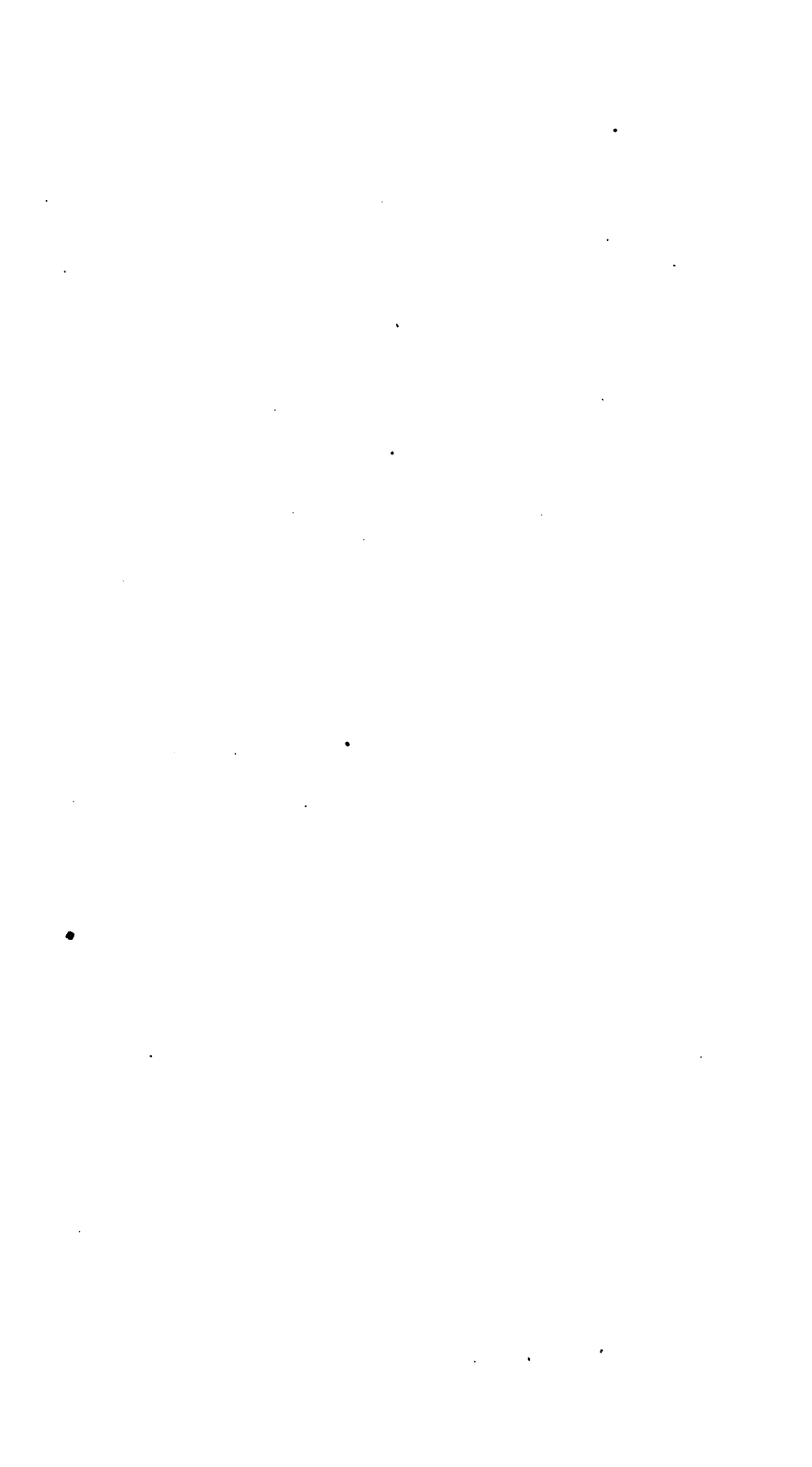
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THE BRITISH FLORA MEDICA.

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THE
BRITISH FLORA MEDICA:

A HISTORY OF THE
MEDICINAL PLANTS OF GREAT BRITAIN.

By BENJAMIN H. BARTON, F.L.S.

AND

THOMAS CASTLE, M.D., F.L.S.

A NEW EDITION,
REVISED, CONDENSED, AND PARTLY RE-WRITTEN,
By JOHN R. JACKSON, A.L.S.,
CURATOR OF THE MUSEUMS OF ECONOMIC BOTANY, ROYAL GARDENS, KEW.



Illustrated by a Coloured Figure of each Plant.

London:
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1877.

E. W. SAWYER
425 North June Street
Los Angeles, California 90004

PREFACE.

THE great importance of the vegetable kingdom, whether it be considered as affording aliment, clothing, or medicine to the human race, is so obvious as to require no demonstration. If we recur to the earliest periods of the history of our globe, we observe the first dawn of medical science in the employment of those productions which, springing up in such abundance, and affording as they did to primeval man the chief, if not the only article of food, were naturally resorted to as the most suitable remedies for disease and pain. Through every succeeding age, plants have attracted a large share of attention, and have formed the chief resources of the healing art; and though for a time disregarded, in the rage for minerals and visionary schemes of treatment, it may be safely affirmed that they constitute the most potent, tractable, and valuable agents with which the physician is acquainted.

It has often been remarked that the indigenous plants of Britain are too much neglected. This is doubtless, in great measure, the result of that undue preference for all that is novel and rare and difficult to be procured—so characteristic of human nature; to which may be added, that partial and disingenuous spirit of criticism which often condemns without investigating. And it is not only in medicinal, but also in various other economic plants that this prejudice in favour

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of one to the condemnation of others is constantly asserting itself.

The immediate design of this work was to furnish an accurate description of all the medicinal plants indigenous to Britain, which appeared to the authors entitled to that character from the estimation in which they were held by the greatest and most skilful of the old physicians. That they were frequently correct in their judgment is apparent from the fact, that several of the plants which they recommended have been allowed to sink in oblivion, and after many years' neglect, have again been successfully used by modern practitioners. This is well exemplified in the history of Foxglove, the more prominent effects of which were fully understood in the sixteenth century: it was admitted into the London Pharmacopœia in 1725, discarded in 1746, and has since been again restored.

The idea of this *Flora* was suggested to the authors by the *British Domestic Herbal* of Waller, a good practical work of its time, containing a judicious selection of indigenous medical plants, illustrated by figures of the less familiar species. The best of these plates have been chosen to illustrate the present work, considerable additions and improvements being made, and new figures of at least an equal number being expressly engraved. Some extracts from the above-mentioned volume are interspersed through the following pages.

The foregoing remarks are chiefly those of the authors of the original work, which appeared in 1837, and they are equally applicable to the present time and the present volume. It remains only for me to explain my share in reducing an elaborate work of over 900 pages to its present form.

First, then, with regard to the scientific name of each plant, I have adopted that of the most recent authority, excluding altogether the Latin synonyms, as well as the names by which the plant is known in various parts of the world, retaining

only the French and German nomenclature as being the most useful.

The Linnean system has also been entirely excluded, and the botanical descriptions much abbreviated. The rest of the matter has been pruned and weeded in many cases with a lavish hand; care, however, having been taken to retain, in a condensed form, most of the opinions of ancient writers on the medical properties of the individual plants, as well as old recipes and formulas for pharmaceutical and other preparations, which are every year becoming less known, and are only to be found in the pages of old and rare books. These appeared to me worth preserving, not with the idea of their being of any practical use at the present time, but as memorials of past ages. The opinions of the authors themselves upon the medicinal value of the respective plants have likewise been preserved, and where the plant is included in the *Pharmacopœia*, or is of acknowledged use at the present time, such a fact is mentioned.

Many plants occur throughout the following pages that are not indigenous to the British Isles, and consequently in my opinion ought not to have been included, but the arrangement of the plates necessitated their introduction. The value of many of the plants, likewise, in a medicinal point of view, rests on a very slender basis, their introduction being solely on the testimony of ancient writers.

In the present volume popular utility has been kept in view, and an attempt has been made to render the text available to the general as well as to the medical reader.

In matters connected with the uses of the plants, I have frequently referred to Flückiger and Hanbury's *Pharmacographia*; and in the botany and geographical distribution, to Dr. Hooker's *Student's Flora of the British Isles*. The mention of these works will be a sufficient guarantee for the accuracy of these details.

In conclusion, I have to express my indebtedness to my

friend Mr. James Britten, F.L.S., of the British Museum, for many valuable suggestions, particularly with regard to the popular or common names of the plants—a subject to which he has paid considerable attention,—and also for his assistance in correcting the proof sheets.

JOHN R. JACKSON.

RICHMOND,
April, 1877.

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THE BRITISH FLORA MEDICA.

I.

ACONITUM NAPELLUS, L.

MONK'S-HOOD, WOLF'S-BANE, OR ACONITE.

Nat. Ord. RANUNCULACEÆ.

F. CAPUCHON DE MOINE, MADRIETTE. *G.* STURMHUT, WOLFSWURZ.

Description.—Rootstock perennial, napiform, fleshy, dark colour without, whitish within, sending off numerous fibres. The roots, as seen in commerce, are from 2 to 3 or 4 inches long, and from $\frac{1}{2}$ to 1 inch thick at top; when dry it breaks with a short fracture with a white farinaceous centre, and has a biting, somewhat sweetish taste. Stem erect, simple, sub-angular, smooth, 3 or 4 feet high. Leaves alternate, palmate, deeply divided into 5 elongated wedge-shaped segments, which are irregularly cut and toothed and furrowed on their upper surface. Lower leaves with long footstalks, upper nearly sessile; the whole dark green above, paler beneath, smooth, and shining. Flowers in a long cylindrical raceme at the top of the stem; each flower supported on a pedicel with small bracts at the base. Calyx deep violet, of unequal sepals; uppermost arched, helmet-shaped, concealing the petals; lateral ones broad and nearly round; lower oblong, divaricating. The 2 petals or nectaries on long incurved stalks, concealed beneath the helmet; each petal furnished with a hooked spur and an oblong bifid limb. Stamens numerous, converging, supporting

whitish anthers. Pistils generally 3 in number, each furnished with a simple style and reflexed stigma. Capsules usually 3, oval, smooth, containing numerous black, angular, wrinkled seeds. (Plate I., fig. 2.)

Distribution.—Europe, Siberia, Western Asia to the Himalaya; naturalized in a few places in the west of England and in South Wales. First cultivated in English gardens about the year 1596. Flowers July to September.

Etymology and History.—The etymology of the name *Aconitum* is rather doubtful. Some have derived it from *akéviros*, devoid of dust, in reference to the rocky soil in which it grows; others from *akon*, a javelin, because the natives of uncivilized countries poisoned their darts with its juice; but the most probable derivation is from *Acone*, a town of Bithynia, near the shores of the Euxine Sea, which was famous for poisonous herbs, and especially the Aconite. The vernacular name Monk's-hood originated from the resemblance between the helmet of the blossom and the hood or cowl of a monk; and that of Wolf's-bane, from the deadly effects of the plant upon the wolf—perhaps from a tradition mentioned by an old writer that wolves, in time of scarcity, have torn up the roots and eaten them as food, and have soon after been found dead.

The ancients appear to have considered this plant as the most virulent of all poisons, and indeed there are few that surpass it in venom. Its beauty has obtained for it a place in our gardens, and its handsome flowers tend to mask its baneful qualities. Many of the old writers employed the term Aconite as synonymous with all that is deadly in the vegetable world. Thus, in Shakspeare—

“Thou shalt proue a shelter to thy friends,
A hoope of gold to binde thy brothers in:
That the vnited vessell of their blood,
Shall neuer leake, though it doe worke as strong
As *Aconitum*, or rash gunpowder.”

2 *Hen. IV.*, Act iv., Scene 4.

Properties and Uses.—All parts of the plant are more or less poisonous, but the root is the most virulent. The effect of the leaves, when taken into the system, is to produce a kind

of intoxication or madness with a burning heat in the mouth and throat, numbness of the lips, cold sweats, faintings, and spasms, generally proving fatal in a few hours. Even the juice introduced into a small wound in the thumb has been known to give rise to pains in the fingers and arms, anxiety and pain of the stomach, fainting, and finally copious suppuration and gangrene. The farina of the flowers accidentally blown into the eyes has produced great pain and swelling, and temporary blindness; and the root, if kept long in the hand, is said to produce unpleasant symptoms.

Matthioli mentions the circumstance of four robbers, under sentence of death, to whom this plant was administered, two of whom, after suffering the most violent torments, were saved by appropriate remedies; the other two died. One of these became, in a few hours, idiotic; the face was bathed in a cold sweat: a total loss of sensation, with fainting and spasms, followed. He vomited a quantity of bilious matter, the body swelled up, and he died in a state of apoplexy.

In the Philosophical Transactions for 1734 is related the case of a man who accidentally ate a few leaves of the Aconite in a salad. A burning sensation in the tongue and gums, and great irritation about the cheeks, immediately succeeded. The symptoms continued to grow worse, and two hours after being attacked medical aid was resorted to. By this time the patient's eyes had become fixed, hands and feet icy cold, the body covered with a cold sweat, pulse and respiration scarcely perceptible. Upon administering spirit of hartshorn, coughing and vomiting ensued, which was augmented by an infusion of the blessed thistle (*Cnicus benedictus*). He soon after passed a stool and vomited afresh. The pulse rose slightly and intermitted with great irregularity. A mixture of Theriaca Andromachi, Sal volatile, etc., was administered, and the next morning the patient was much better, and soon recovered.

Aconite root has not unfrequently been mistaken for horse-radish. Many fatal cases are on record. One, illustrating the rapid effects of the poison, is recorded in the *Times* of November 10, 1854, in which a gentleman, dining with his brother in Bristol, partook, with roast beef, of what was sup-

posed to be horse-radish, which was obtained from the garden, and dressed and served in the usual way. Soon after dinner a peculiar tingling sensation in the hands and arms was experienced. The symptoms rapidly increased. Brandy was given and medical aid instantly procured, but he rapidly sank, and died in about an hour. In the *Lancet* for October 6, 1860, another case, though not a fatal one, is recorded, in which four members of a family partook of some pickles in which, by accident, some Aconite root had been sliced instead of horse-radish. They were soon after attacked with violent spasms, and severe pains with a pricking sensation in the limbs, and partial loss of sight. Chloric ether and ammonia were given in full doses. Two of the patients who had taken a large quantity of the vinegar, suffered more severely; and in these cases mustard poultices were applied to the chest and back of the neck, and galvanism employed, in addition to the other remedies, and the patients all gradually recovered.

Notwithstanding these unfortunate mistakes, horse-radish can easily be distinguished from Aconite. The rootstock of the former is longer, straighter, and of a dirty yellow colour; while the Aconite roots are thick at the top, tapering to a point below, of a dark brown colour, and with numerous root fibres. Besides this, the foliage and general habits of the plants are so dissimilar.

It is not a little remarkable that in certain localities the poisonous qualities of the Aconite are not developed, and it is so entirely innocuous that it is used as a pot-herb. "This was pointed out as long ago as 1671, by Martin Bernhard, an eminent Polish physician and botanist; and was confirmed by Linneus so far as relates to Lapland, where the young shoots of one species are cooked and eaten. It is still more strange to find that, while in certain districts of Northern India the roots are collected as a poison, there are others in which the same roots are eaten as a pleasant tonic."—*Pharmacographia*, p. 8.

Baron Störck, a physician of Vienna, was the first to introduce Aconite into medical practice, about 1762. He strenuously recommended it in gout, chronic rheumatism,

intermittent fevers, scrofulous swellings, etc. At the present time it is given in the form of tincture, as an anodyne liniment, and sometimes internally in rheumatic affections.

The active principle of the Aconite, which has been named *aconitine*, was discovered in 1833, by Geiger and Hesse. It contains all the virulent poisonous properties of the plant in a tenfold degree. It has been proved that the tenth of a grain will kill a small bird instantaneously; and 20 drops of a solution composed of 1 grain of aconitine in a drachm of alcohol is sufficient to kill a guinea-pig in a very few minutes.

Aconite is used in the forms of powder, extract, or tincture. In the powder it is given in doses of 1 or 2 grains, which can be gradually, but carefully, increased until some effects are produced; it cannot, however, be depended upon, in consequence of its being liable to lose its virtue. The officinal preparations are—1. Extract, prepared by bruising the fresh leaves and flowering tops of the plant in a mortar, and expressing the juice, which is gradually heated to 130°, and the green colouring matter separated by straining it through a fine cloth. It is then evaporated to the consistence of thin honey, and the colouring matter, which had been previously separated, again added, when the whole mass is stirred together, placed over heat, and evaporated till it becomes of a thick pasty substance. This is usually given in the form of pills, in doses from 1 to 2 grains, which may be slowly increased. 2. Tincture. This is prepared by placing powdered Aconite root in rectified spirit, and allowing it to macerate for 48 hours, stirring it occasionally; it is then placed in a percolator, through which the fluid passes; the solid matter is submitted to pressure, the product from which is, after filtering, mixed with the fluid previously strained through; rectified spirit is added as required, and tincture of Aconite is obtained.

Treatment of Poisoning by Aconite.—The principal thing to be done in this and other vegetable poisons is, to procure vomiting by any means; the most speedy and effectual method is to force the finger or a feather down the throat, and keep up a titillation of the fauces. This will generally succeed when the strongest emetics fail, and ought not to be delayed a

moment after it is once ascertained that Aconite has been swallowed, as the danger is always in proportion to the quantity swallowed and the length of time it remains in the stomach. After the poison has been evacuated, some cordial draught, or a little wine, may be given with advantage.

There are several other species of Aconite, all more or less poisonous, although *A. Anthora* was once considered wholesome and an antidote to the noxious species; its root was also considered the zedoary of the Arabian physician, Avicenna. The *A. Lycoctonum*, or true Wolf's-bane, is also poisonous, but Linneus, in his *Flora Lapponica*, mentions an interesting circumstance respecting it. He says, "In my journey through Medelpadia (a province of Norland), I saw a woman gathering the leaves of this Aconite, and on asking her for what purpose they were designed, she replied they were intended to be used as food. To convince her of her danger (for I thought she had mistaken the leaves for those of a species of geranium), I implored, by all she held dear, not to prepare her last meal. But she with a smile said there was no danger,—she knew the plant well, and had so often gathered it for years, as well as her neighbours, that she thought I could not be properly acquainted with it myself. I then entered her cottage and saw her cut the leaves in pieces and boil them with a little fat, so as to make broth, of which she partook, together with her husband, two children, and an old woman,—thus

‘Lurida terribiles miscent aconita novercæ;’—

and what was most wonderful, with impunity." He then proceeds to inquire the reason of this apparent discrepancy, and concludes by remarking that the long-continued boiling deprived the herb of its deleterious properties. There can be no doubt that this was the case, as the active principle in most of the Ranunculaceæ is extremely volatile, so that by simply drying them it is in great measure dispersed. Linneus further remarks that the Monk's-hood is fatal to kine and goats who come fresh to it; but that it does no injury to horses who eat it only when dry.

Poisonous as are the European Aconites, they are, however,

exceeded in virulence by some Indian species, the principal of them being *A. ferox*, a species which yields the bulk of the root known as Bish, Bikh, or in ancient sanscrit, Visha—a word which signifies simply poison. In India it is sold in the bazaars, and is used for poisoning wild beasts. Of late years Indian Aconite has been imported in considerable quantities into London under the name of Nepal Aconite, and from the appearance of the roots it is probably produced by *A. ferox*. It is used as a source of aconitine, and is said to be more potent than *A. Napellus*.

II.

OPHIOGLOSSUM VULGATUM, L. ADDER'S-TONGUE.

Nat. Ord. FILICES.

F. LA LANGUE DE SERPENT, L'HERBE SANS COUTURE. G. NATTESZUNGE, SCHLAUGEREZUNGE.

Description.—Rootstock short, with fleshy fibrous roots. Blade of barren frond, ovate linear, or elliptic oblong, 2 to 4 inches long; fertile frond, a flattened distichous spike; spore-cases globose, in a single line along the margins of the spike, bursting when ripe into 2 equal hemispherical valves, which dehiscence gives to the spike the appearance of having been notched. These spikes, peeping up from among the grass, have been compared to a snake or adder's tongue: hence its common name, by an equivalent of which it is known in most European languages. (Plate I, fig. 1: (a) the fertile frond or spike, which has burst and discharged the spores; (b) the spores magnified.)

Distribution.—Europe, Madeira, Western Asia to the Himalaya, Western Siberia, North America, and south temperate regions; in moist meadows and woods, and by the sides of rivulets, appearing about the end of April and continuing till the beginning of June, when it withers and disappears.

Etymology and History.—The generic name *Ophioglossum*

is derived from the Greek ὄφις, of a snake, and γλωσσα, a tongue, in reference to the spike of fructification.

Adder's-tongue cannot be considered a poisonous plant, but it would appear from the character of its associates in the following lines, that it was looked upon with some suspicion.

“ And I ha' been plucking (plants among)
Hemlock, henbane, *adder's-tongue*,
Night-shade, moone-wort, libbard's-bane;
And twice by the dogs, was like to be ta'en.”

JONSON'S *Masque of Queens*.

Properties and Uses.—This plant was formerly esteemed as an excellent application to wounds, whether taken inwardly or applied externally. Ray speaks of it as possessing this property. It is not unlikely that it first obtained this character from the resemblance of the spike to an adder's tongue, and thus, according to the doctrine of signatures, was a remedy for wounds occasioned by the adder. If so, its use would soon be extended to other wounds, ulcers, etc.

The most usual method of employing it was by infusing the leaf and spike of the plant in olive oil. This has been applied to wounds as a kind of balsam, and is, as Gerard remarks, of so beautiful a green, that many have supposed it made of verdigris.

An ointment may also be made with olive oil, white wax and spermaceti, melted over a slow fire; and when quite dissolved, adding a good handful of the Adder's-tongue, which should remain until it becomes shrivelled.

The plant is not used in modern practice.

III.

AGRIMONIA EUPATORIA, L. AGRIMONY.

*Nat. Ord. ROSACEÆ.**F. AIGREMOINE, SOUHEIBETTE. G. ODERMENNIG, ACKERMENNIG.*

Description. — Root perennial, thick, fibrous, knotted, covered with a dark-coloured bark, beneath which is a tissue of a fine red colour. Stem about 2 feet high, erect, cylindrical, rather rough, hairy, and generally simple. Leaves alternate, interruptedly pinnate; large leaflets deeply serrate, intermediate smaller ones 3 to 5 cleft. Between these are others extremely small and entire; the whole ovate, hairy, and sessile, except the terminal leaflet, which is furnished with a footstalk. Stipules 2, opposite, amplexicaul, and deeply serrate. Flowers small, yellow, almost sessile, with a 3-cleft bract at their base, and disposed in a long terminal spike. Calyx double; the interior or true calyx permanent, composed of 5 ovate, pointed segments, externally surrounded with numerous rigid hairs, hooked at the end; hairy on the outside and at the edges. Corolla composed of 5 ovate, spreading petals, slightly notched at the end, bright yellow, much longer than the calyx, into the throat of which they are inserted. Stamens usually 12, varying to 5 in number, rising from the calyx, shorter than the petals; anthers small, double and compressed. Ovary inferior, double; styles 2, each terminated by an obtuse stigma. Capsule formed of the hardened calyx contracted at the summit, containing 1 or 2 smooth, oval, roundish seeds. (Plate I, fig. 4: (a) the flower, from which the petals are detached; (b) the ripe fruit.)

Distribution. — Northern temperate regions, Northern and Southern Africa. Abundant in this country in hedgerows, borders of fields, and road-sides. Flowers June to August. The curious provision of nature for disseminating the species is deserving of remark. The fruit is beset with long rigid hairs, hooked at the end, by means of which it adheres to the person or animal that may happen to come in contact with it.

Etymology.—The origin of the name Agrimony is obscure, but it has been supposed by some to be derived from *ager*, *agri*, a field; others imagine that it is a corruption of *αργεμone*, a name given by the Greeks to a plant that was reputed to cure cataract of the eye. It was called Eupatoria, from *ἥπαρ*, *ἥπαρος*, the liver, in the diseases of which organ it has in all ages been esteemed an effectual remedy.

Properties and Uses.—In spring the whole plant, and especially the root, exhales an agreeable odour, which is, however, rather feeble, and is soon lost by drying. The flowers, when fresh gathered, says Withering, smell like apricots. It is bitter and astringent to the taste, but is eaten occasionally by sheep and goats; horses, cows, and swine refuse it.

The plant gathered in the early flowering season yields a bright nankeen colour, but if gathered in autumn, furnishes a darker yellow. Dambourney recommends for this purpose a strong infusion to be made in water, and a weak solution of bismuth to be used as a mordant. The astringent qualities of the plant have recommended it also for dressing leather.

Geoffroy remarks, that the juice of the leaves imparts a slight red tinge to blue paper; and an infusion of them instantly blackens a solution of sulphate of iron. Though the plant is not used in modern practice, in former times it was considered very efficacious in removing obstructions. It was used in the form of an infusion made by pouring a quart of boiling water upon a handful of dried leaves. A kind of tea, made by putting five or six dried leaves to half-pint of boiling water, with the addition of sugar, was considered valuable in liver complaints; a teacupful taken in the morning, fasting, and repeated twice or three times a day, is said to have proved an excellent purifier of the blood, and consequently serviceable in cutaneous eruptions. Boiled with chamomile flowers, St. John's wort, and wormwood, it has been used for external fomentations. As a vulnerary it has enjoyed as much fame as the adder's-tongue; boiled with wheaten bran in wine-lees, and applied to luxations, sprains, etc., it was esteemed very efficacious. It forms a very good gargle for sore throats. The

plant should be gathered when in blossom, and carefully dried in the shade; it may then be preserved in boxes, or hung up in bundles in a dry place.

IV.

SMYRNIUM OLUSATRUM, L. ALEXANDERS.

Nat. Ord. UMBELLIFERÆ.

F. MACERON COMMUN. *G.* SMYRNENKRAUT.

Description.—Root biennial, large, thick, and long, blackish externally, white within; aromatic, but somewhat acrid and bitter. Stem cylindrical, branched and furrowed, 3 or 4 feet high. Radical leaves thrice ternate, upper simply ternate, with a broad membranous base. Leaflets $1\frac{1}{2}$ to 2 inches long, broadly obovate or ovate, lobed and serrated, smooth and shining. Flowers light yellow, small, numerous, irregular, arranged in dense spherical umbels; calyx teeth minute or absent. Petals 5, incurved at the points. Stamens 5. Ovary inferior, with 2 simple styles and stigmata. Fruit of 2 indehiscent pericarps or carpels, somewhat crescent-shaped, channelled, nearly black when ripe. (Plate II., fig. 1: (a) floret; (b) fruit; (c) the fruit cut transversely.)

Distribution.—Europe from Holland southwards, Northern Africa and Western Asia. In this country it grows in waste places, and amongst rivers, especially near the sea: it is frequent in Ireland. From its being often found in the vicinity of abbeyes, etc., it is to be inferred that it was held in great repute by the monks. Flowers April to June: seeds ripen in August.

Etymology.—The name *Smyrnum* appears to be derived from *σμύρνα*, myrrh, in allusion to the odour of the plant, which is somewhat like myrrh, as observed by Pliny. It takes its specific name from *olus*, a pot-herb, and *atrum*, black, probably from the dark colour of the fruit. The English name *Alexanders* is a corruption of *Olusatrum*, or, as some

think, derived from Alexandria in Egypt, whence it was supposed to have been originally brought.

Properties and Uses.—Alexanders was formerly cultivated in our gardens as a culinary herb, but it is now almost supplanted by the celery, which is of a more delicate flavour. It was cultivated much in the same manner as celery, and like it was dug up for use in autumn and winter. The leaves, too, were boiled in broths and soups. It is an aromatic herb, but too strong and pungent to be agreeable.

The roots and seeds have been reputed diuretic and emmenagogue. Dioscorides affirms that the latter are good for such as are afflicted with dropsy. The powdered seeds are said to have been used as a carminative, in doses of from half a drachm to a drachm in a glass of wine. The expressed juice of the leaves has been recommended as a specific in gravel and diseases of the urinary passages, taken in the proportion of from 3 to 6 ounces with white wine.

V.

ALKANNA TINCTORIA, L. ALKANET, OR DYER'S BUGLOSS.

Nat. Ord. BORAGINÆÆ.

F. ORCANETTE TINCTORIALE. *G.* ALKANNAWURZEL, FARBEN OCHSENZUNGE.

Description.—Root perennial, long, woody, fibrous, externally purplish red. Stem thick, round, hairy, branched, about 18 inches high. Leaves oblong-lanceolate, somewhat obtuse, hairy, without footstalks. Flowers sessile in the axils of the floral leaves, terminating the branches in close spikes. Calyx persistent, divided into 5 deep, oblong, erect segments. Corolla funnel-shaped; stamens enclosed in the tube, which is closed at the mouth by 5 small prominent scales. The 5 filaments are short, with simple anthers. Ovary 4-parted, style simple, stigma bifid. Fruit composed of 4 achenia or small nuts, invested by the persistent calyx. (Plate I., fig. 3: (a) the corolla and stamens; (b) the pistil; (c) the persistent calyx investing the fruit.)

Distribution.—Native of the south of Europe, originally brought to this country from Montpellier, about 300 years since. Cultivated in Southern and Central Europe, and may sometimes be seen in our gardens; but its roots never attain, in this country, that fine colour for which the foreign are so much prized. Flowers June to October.

Etymology.—The generic name of this plant is probably derived from *αγγουσα*, paint, because the roots were formerly used to afford a dye for staining the face.

Properties and Uses.—The bark of the root has been long valued for the fine red colour it affords. It is imported into this country from France and Germany, in long twisted pieces of a dusky red hue, in quantities averaging about 8 or 10 tons annually. It imparts a deep red colour to alcohol, ether, oils, and wax, but to water it only yields a dull brown. It is used by dyers, and also by cabinet-makers for staining wood, and is said to be employed by vintners for staining the corks of their port wine bottles, or for colouring and flavouring the spurious compounds sold as port wine. It was formerly recommended in several diseases, particularly as an astringent. It is now used almost entirely for colouring oils, ointments, etc. It contains a peculiar colouring principle, which Dr. John calls *pseudo-alcannin*.

VI.

ANGELICA ARCHANGELICA, L. GARDEN ANGELICA.

Nat. Ord. UMBELLIFERÆ.

F. ANGELIQUE. *G.* ANGELIKA, ANGELIKWURZEL.

Description.—Root biennial, thick, fusiform, with numerous fibres, resinous, brown externally, white within. Stem erect, 4 to 5 feet high, thick, cylindrical, jointed, striated, fistulose, smooth, and sends off numerous branches, terminated by large spreading umbels. Leaves large, alternate, doubly winged; leaflets ovate, serrated, pointed, often 3-lobed, especially the

terminal one. Footstalks membranous at base, and much dilated. Flowers numerous, greenish white, in large, nearly spherical, many-rayed umbels. Calyx minute. Petals 5, nearly equal, oblong, lanceolate, and inflexed at the point. Stamens 5, spreading, and longer than the petals. Ovary inferior, ovate, furrowed, with 2 short styles at first erect, afterwards recurved. Fruit somewhat compressed, with 2 broad wings. Carpels marked with 3 acute ridges at back, lateral ones passing into the wings of the fruit. Seed solitary in the carpel, free, ovate, and pointed. (Plate III., fig. 1: (a) the ripe fruit.)

Distribution.—Lapland, Norway, Sweden, Austria, Silesia, on the Alps and Pyrenees: especially abundant on the banks of rivers in those countries. Cultivated in English gardens prior to 1568, and now naturalized in some localities. Flowers June to September.

Etymology.—This plant has received its imposing name from *angelicus*, on account of its medicinal virtues, especially from its being considered efficacious against pestilential diseases. It is called *Archangelica*, from *αρχη*, pre-eminence, because of its superiority to the other species of the genus.

Properties and Uses.—Every part of the recent plant, particularly the root, is fragrant and agreeable, with an aroma somewhat resembling that of musk. The taste is sweetish at first, and balsamic, followed by a warmth and bitterness which is by no means disagreeable. On wounding the fresh root in the spring, it yields a yellowish, odorous juice, which being slowly dried, proves a valuable gum resin, very rich in the qualities of the plant.

The leaves and seeds do not long retain their virtues after gathering, but the root may be preserved for a considerable time, if thoroughly dried, and kept from damp. Rectified spirit extracts the whole of the virtues of the root—water, but very little.

The *Angelica* has had the repute of being an excellent tonic and carminative, and though it is not used by modern physicians it was very highly commended by all the older ones. Etmuller and Sydenham speak of it in the highest

terms, and they particularly recommend it in colics and flatulence, and in obstructions of the menses. A decoction of one ounce of the dried root, boiled in three pints of water to a quart, was said to be an excellent sudorific and cordial. In this form it has been found of great service in typhus fevers. The powder of the dried root has also been given in substance, from half a drachm to a drachm, and is described as a useful addition to Peruvian bark in agues. It has also been considered an excellent ingredient in the compound tincture of bark.

In marshy countries, where agues are prevalent, an infusion prepared from powdered Peruvian bark, dried orange peel, Angelica root, and brandy, was recommended as a good preventive against those complaints, as well as a remedy for them when they have made their attack. In the old Pharmacopœias there was a compound spirit of Angelica, which was administered to such persons as suffer much from wind in the stomach and bowels, or hysterical affections. A very elegant distilled water may be obtained from the dried leaves, which possesses the same aromatic properties as the plant, and is a pleasant vehicle for other more nauseous medicines.

The fresh stalks of the Angelica are made by confectioners into an agreeable sweetmeat, which contains much of the virtues of the plant. In the Pharmacopœia of Paris, the following mode of preserving it is given:—

Take of young stalks of Angelica, any quantity. Remove from them the outer rind, cut them into pieces three or four inches long, whiten them in boiling water, and lay them on a sieve that the water may drain from them. Then put them into a syrup made of purified sugar, boil till aqueous vapour ceases to ascend, and leave them to dry in a stove chamber, on a wooden frame.

An essential oil may also be obtained from the roots, which should be dug in the autumn, and the young stems for candying in May.

Gerard thus describes the manifold virtues of Angelica:—
“The roote of Garden Angelica, is a singular remedie against poison, and against the plague, and all infections taken by euill and corrup aire, if you do but take a peece of the roote

and holde it in your mouth, it doth most certainly drive away the pestilentiall aire, yea, although that corrup aire have possessed the hart, yet it driueth it out again by vrine and sweate, as rice and treacle doth and such like Antipharmaca. Angelica is an enemie to poisons: it cureth pestilent diseases if it be vsed in season; a dram waight of the powder hereof is given with thin wine, or, if a feauer be vehement, with the distilled water of Carduus Benedictus or of Tormentill, and with a little vineger and by itselfe also, with treacle of vipers added. It openeth the liuer and spleene. . . . It extenuateth and maketh thinne grosse and tough flegme. . . . It is reported that the roote is auailable against witchcraft and enchantments, if a man carrie the same about him as Fuchsius saith. . . . It is a most singular medicine against surfeiting and lothsomnes to meate; it helpeth concoction in the stomacke and is right beneficial to the hart: it cureth the bitings of mad dogs and all other venomous beasts."—*Herball*, p. 849.

The Laplanders considered this plant as one of the most important productions of their soil. During that part of the year which they pass in the woods, they are subject to a severe kind of colic, against which the root of Angelica is one of their chief remedies. They also frequently mix the unexpanded umbels with the leaves of sorrel, and boiling them down in the water to the consistence of a syrup, mix it with reindeer's milk, and thus form a stomachic and astringent medicine.

Linneus, in his *Flora Lapponica*, informs us that they give different names to the various parts and states of the plant. They extol the root of the first year, before the stem has shot up, as the best remedy for preserving health. They also masticate the dried root in the place of tobacco. The stem, cut down before the umbels are quite unfolded, and stripped of its outer rind, is to them an apology for the fruits of more genial climates, and furnishes no inconsiderable part of their food. The Icelanders eat the stem and roots of Angelica raw with butter, and the Norwegians are said to make bread of the roots.

Cattle in general are fond of this plant, and the milk of

cows that feed on it is said to have a peculiar taste and smell. Horses refuse it. It has no reputation at the present time for any medical or economical properties. Its chief use is as a picturesque garden plant.

An allied plant, the *Angelica sylvestris*, or wild Angelica, though somewhat smaller in all its parts, resembles the preceding in habit, but is greatly inferior in quality. It has been administered, however, by some practitioners with success, in hysterical and epileptic complaints. Tanners have discovered that it has properties analogous to those of oak-bark, and a tincture has been prepared from the leaves which dyes woollen stuffs of a golden yellow colour. Bees obtain a fine honey from its flowers.

VII.

ARUM MACULATUM, L.

LORDS-AND-LADIES, CUCKOO-PINT, OR WAKE-ROBIN.

Nat. Ord. ARIODEÆ.

F. GOUET, PIED-DE-VEAU. *G. AARONSWURZEL*, KALBSFUSS.

Description. — Rootstock tuberous, about the size of a pigeon's egg, with numerous slender fibres, brownish externally, white within, fleshy, yields a milky juice. Leaves radical, large, halbert or arrow-shaped, smooth, shining, dark green, veined, and often marked with dark spots. Spadix enclosed in an ample, concave, convolute spathe, erect, pointed, pale green, and sometimes spotted within. Spadix simple, club-shaped, purplish or buff colour at the extremity, the lower part bearing the flowering organs. Anthers adnate, dehiscence terminal. Ovaries numerous, obovate, greenish yellow. Berries bright scarlet, globose, succulent, 1-celled, containing one or more hard, roundish seeds. (Plate III., fig. 2: (a) the ripe fruit; (b) berry detached from the spadix; (c) the same, cut vertically to show the seed.)

Distribution. — The common Arum, familiar to children by

the name of Lords-and-ladies, is found in almost all climates. It is frequent in most parts of England, rare in Scotland, and abundant in Ireland. It grows in damp shady places in groves and hedges. Flowers April and May, ripening its fruit in autumn.

Etymology.—The generic name is supposed to be derived from the Hebrew *jaron*, a dart, in allusion to the shape of the leaves; or from an Egyptian word by which some plant of the kind was designated. The plant has many English vernacular names; it is sometimes called Calf's-foot, from the shape of the leaf, and is known by the same appellation in many of the European languages.

The majority of the species of *Arum* are natives of the tropics. The *A. Dracunculus*, or common Dragon Arum, brought from the south of Europe, has the stem spotted like the belly of a snake, and the flower exhales a putrid odour equal to that of carrion. The root of *A. Colocasia*, or, as it is now called, *Colocasia antiquorum*, is eaten in Egypt and the Levant.

Properties and Uses.—Every part of the common *Arum* is acrid, styptic and pungent, and contains a juice which turns syrup of violets green, reddens litmus paper, and is coagulated by the mineral acids. Vauquelin has detected malate of lime in the expressed juice. The leaves are so acrimonious, that applied to a delicate skin they irritate and inflame it, and sometimes produce blisters. The roots, however, are the most powerful; when recent they are nearly white and inodorous, almost insipid to the taste at first, but soon produce a sensation of burning and pricking as if by needles, which lasts for several hours, and can only be mitigated by oily or mucilaginous drinks. This acrimony is almost lost in drying, and is quite dissipated by submitting the roots to the process of baking or boiling.

A very white and pure fecula resembling arrow-root may be procured, by reducing the fresh roots to a pulp and placing it on a strainer. Cold water is then to be repeatedly poured on it, which carries the farinaceous particles through the strainer, and leaves behind the fibrous part. The fecula which subsides is deprived of its acrimony by drying, and affords a

delicate and nutritious food. This was at one time prepared in large quantities, in the Isle of Portland, and used as food, under the name of Portland arrow-root.

Tournefort mentions that in Lower Poitou the women cut the stalks of the plant while in flower, and macerate them for three weeks in water, which they change every day; then pouring off the water, they dry the residue and use it instead of soap to wash their linen. According to Dr. Withering, the French *cypress-powder* is merely the dried root pulverised. A distilled water was also at one time prepared from it, and celebrated as a cosmetic. The berries are eaten by birds; and, in spring, pigs eat the leaves with impunity.

There is a circumstance connected with the growth of this, in common with other allied species, that is noteworthy amongst British plants. At the period of fecundation, it was discovered by Lamarck, and others, that the spadix evolved a considerable degree of heat. Brogniart found in his experiments on the *Colocasia odora*, that the heat thus disengaged was most intense when the anthers were in full vigour, and amounted to 52° (Fahr.) above that of the surrounding air.

The common Arum in its recent state is undoubtedly poisonous. Children are said to have mistaken the leaves for those of sorrel: they occasion a very considerable degree of excoriation, and sometimes hemorrhage from the tongue and fauces.

Bulliard (*Histoire des Plantes Vénéneuses*, p. 84) relates the following case: "Three children ate of the leaves of this plant. They were seized with horrible convulsions, and with two of them assistance was unavailing, as they were unable to swallow anything. They died in a few days. The third was saved with difficulty. Its tongue was so swelled that it filled the whole cavity of the mouth, but this symptom was relieved by bleeding, and copious draughts of milk and olive oil were found serviceable."

The treatment in poisoning by Arum is the same as that employed for other vegetable irritants. The noxious substance should be removed by emetics, unless spontaneous vomiting occurs.

Arum roots were at one time employed in medicine, and were considered as a remedy of great value in some of the most obstinate diseases, and are said to have been given with very great success in the humoral or moist asthma, in severe chronic rheumatisms, in chlorosis or green sickness, jaundice, obstructions of the viscera, dropsy, and in removing the most inveterate cutaneous diseases, when accompanied by occasional purging. Sydenham employed it successfully in severe chronic rheumatism, particularly of the scorbutic kind, in which disease he esteemed it an invaluable specific; he prescribed it also in dropsies, and in the advanced state of the gout. A severe general dropsy has been known to yield to a prescription of that renowned physician, in which Arum and Angelica were the most prominent articles. Ettmuller extols the fresh-prepared root as a most excellent stomachic in cases of extreme prostration of appetite. He recommends the root to be cut into very small pieces, and taken in brandy. Geoffroy recommends the powder in obstinate intermittent fevers, in the dose of a scruple to half a drachm. Bergius and Gilibert speak of its efficacy in the same diseases, and in certain kinds of headache.

• The time for digging up the roots is in autumn, and they may be preserved fresh for nearly a year if kept buried in sand in a cool cellar. When intended for immediate use, they should be dried slowly, with very little heat, and sliced; when perfectly dry, they should be powdered, and kept in small well-stopped bottles, in a cool place. Lewis recommends the fresh root to be beaten up with some of the gum resins, such as galbanum, until it forms a mass that will allow of being made into pills. In this manner its virtue will be preserved, and the form is very advantageous for taking the medicine. Its properties are also well preserved in a conserve, as they cannot be extracted by any menstruum.

VIII.]

ASARUM EUROPÆUM, L. ASARABACCA.

Nat. Ord. ARISTOLOCHIÆ.*F.* ASARET, CABARET, RONDELLE, OREILLE D'HOMME, NARD SAUVAGE.*G.* WILD NARDE, HASELKRAUT.

Description.—Rhizome perennial, creeping, tortuous, jointed, fleshy, but somewhat ligneous. Stem very short, round, simple, pubescent, generally bearing 2 leaves, from the axil of which the flower springs. Leaves on long petioles, opposite, kidney-shaped, dark green, smooth and shining above, lighter and slightly hairy beneath. Flower solitary, on a short peduncle, drooping, externally coriaceous, of a lurid purple colour. Calyx persistent, campanulate, 3-lobed. Stamens 12, rather short, epigynous. Filaments subulate, alternate ones longer. Ovary inferior. Styles short, recurved, stigmatic tips, projecting between the anthers. Fruit globose, crowned by the persistent calyx, 6-celled, with numerous seeds. (Plate IV., fig. 2: (a), front view of flower, showing the stamens and 6-parted stigma; (b) stamens and pistils; (c) single stamen; (d) capsule cut transversely to show the six cells.)

Distribution.—Europe, from Belgium southwards, Western Siberia. Shady situations in several parts of Great Britain, but extremely local. Flowers in May.

Etymology.—The origin of the ancient name *Asarum* is very doubtful, though it is said by some to have been formed from *α*, not, and *σαρω*, to adorn, because it was rejected from the garlands of antiquity. (*Plinii Hist. Nat. lib. xxi. cap. vi.*) It is also called Foal's-foot and Wild-nard.

Properties and Uses.—The fresh root of *Asarabacca* has a penetrating, aromatic odour, which is not unpleasant, and somewhat resembles that of valerian or nard. Both leaves and root are acrid, bitter and nauseous to the taste. The juice reddens litmus paper, and "a strong watery infusion of the leaves, which was of the colour of brandy, assumed a deep olive by the addition of sulphate of iron, and a greyish precipi-

tate was thrown down." The aroma of the recent root appears to be owing to a volatile camphorated oil, which is not present in the dried root.

The *Asarum canadense*, or wild ginger, is very nearly allied to the present species in botanical characters, but is very different in its medicinal effects. The Canadian plant is a useful aromatic, and is devoid of the emetic principle which distinguishes the European *Asarum*; thus forming a striking exception to the general analogy which exists between the botanical and the medicinal character of vegetables. Both the leaves and root, in their recent state, are emetic and cathartic, and have been employed as a substitute for ipecacuanha. Dr. Gilibert says that ten grains of the fresh root powdered, make as good an emetic as ipecacuanha. He goes on to state, that judiciously administered, whether in powder, infused in water, or digested in white wine, it is an excellent remedy in intermittent fevers, obstructions of the liver and spleen, dropsies, and certain cutaneous diseases. He also asserts, that the root, after being kept six months, loses its emetic property, and is merely purgative; after two years this likewise disappears, and it is then diuretic. Another writer states, that, when *finely powdered*, it acts as an emetic, but when *coarsely powdered*, it passes the stomach and becomes cathartic. Formed into a fine powder and taken as snuff, it occasions a most profuse discharge of mucus from the pituitary membrane of the nose, by which means, headaches, drowsiness, giddiness, and catarrhs, are often speedily and effectually relieved. It has also given great relief in certain species of deafness, arising especially from catarrhs. Geoffroy, who first learned its virtues from an English physician, found it extremely useful in his own practice. He gave from three to four or five grains, to be snuffed up the nose upon going to bed. The use of it, contrary to that of most other snuffs, is not followed by sneezing, or any other immediate effect: but the following morning, a considerable quantity of serous discharge issues from the nose, which continues for some time, and, in some instances, even two or three days, with great relief to the patient. Geoffroy relates a case of paralysis of the mouth and

tongue effectually cured by a single dose of it. He recommends it in heavy pains of the head, and all complaints attended with habitual drowsiness.

The powder of the root is much stronger than that of the leaves; the latter, however, in a fresh state is said to be preferable, as the acrimony on which their properties depend is lost with keeping. A herb-snuff, which at one time had a great reputation, and occupied a place in the London, Edinburgh and Dublin dispensaries, under the name of compound powder of Asarabacca, was made of the powdered leaves of Asarum, marjoram, and lavender flowers.

The famous powder of Sainte-Angé is composed of equal parts of the leaves of Asarum, and the root of white hellebore; and some of the above ingredients, together with herb mastic, lily of the valley, or betony, constitute the cephalic and eye-snuffs that were formerly advertised.

The leaves of Asarum, on account of their resemblance to the shape of the human ear, were formerly employed in affections of that organ. For this purpose they were infused in water, which was dropped into the ear, or dried and used by fumigation. This absurd belief in the doctrine of signatures was very prevalent in the fourteenth and fifteenth centuries. It was based on the hypothesis, that every natural production indicates, by some obvious external mark, the diseases in which it is efficacious. Thus the knotted root of the *Scrophularia*, or figwort, was supposed to indicate its power over scrofulous tumours: the granulated root of the saxifrage, and the hard polished seed of the gromwell, were used in calculous and gravelly disorders; the spotted lungwort was exhibited in diseases of the lungs, and birthwort in those of the uterus. The root of the mandrake, from its supposed resemblance to the human form, was esteemed in the earliest ages a remedy for sterility. Colours were also deemed typical of properties; the bright yellow of the turmeric indicated its efficacy in jaundice, and the scarlet of the poppy its remedial virtue in erysipelas and hemorrhages.

Many other instances might be adduced of this once popular doctrine, which even now is not entirely exploded.

IX.

ASPARAGUS OFFICINALIS, L. COMMON ASPARAGUS.

Nat. Ord. LILIACEÆ.*F.* ASPERGE. *G.* SPARGEL.

Description.—Rootstock composed of a collection of fleshy fibres, yellowish or ash colour. Stems numerous, appearing in the spring under the form of young shoots, cylindrical, greenish, covered with scales, and terminating in a cone-like pointed bud; as the season advances, the stems attain the height of 3 or 4 feet. Leaves linear, setaceous, soft, green, in fascicles of from 3 to 5 on the stem; at the base of each fascicle is a very small membranous stipule. Flowers drooping, dirty or greenish yellow, springing from the axils of the branches, either solitary or 2 or 3 together, on a pedicel articulated in the middle. Perianth inferior, campanulate, deeply divided into 6 segments. Stamens 6, shorter than the perianth, and inserted into its base. Ovary 3-cornered, surmounted by a short style, and a trigonal globose stigma. Fruit a bright red berry, with 3 cells, each containing 2 hard, smooth, angular seeds. (Plate II., fig. 2: (a) the root; (b) the young stem; (c) the flowers; (d) the calyx, opened to show the stamens; (e) the fruit cut horizontally, showing the cells.)

Distribution.—Most parts of Europe, on the sandy plains of Poland, on the banks of the Wolga, in Siberia. Introduced into North America. In England it is found on the coasts from Anglesea and Suffolk southwards: it is naturalized in Scotland and in the south-east of Ireland. Flowers June to August.

Etymology and History.—The name appears to have been derived from the Greek *ασπαράγος*, which was formed from *σπαρᾶσσω*, to tear, (in allusion to the spines of some species), and that, according to Théis, from *spen*, a spine, in Celtic.

In its wild state *Asparagus* is eaten by horses and cattle. Cultivated, it forms one of the most delicate of our culinary vegetables, and its cultivation dates from the Roman period.

It was highly esteemed by the Greeks and Romans. They boiled it so quickly, that to be done "sooner than Asparagus" became a proverb. Suetonius records that Augustus often said "*Velocius quam asparagi coquuntur.*" Cato and Pliny speak of it in the warmest terms of praise.

Properties and Uses.—The roots have a sweetish and somewhat glutinous taste, with a little roughness: they give a slight tinge of red to blue paper. The juice of the young shoots has been found to contain wax, albumen, phosphate and acetate of potass, mannite, a green resin, and a crystalline principle, named *asparagin*. The crystals of asparagin are very slightly soluble in cold, rather more so in boiling water, and quite insoluble in rectified spirit. Asparagin, which was at first discovered in Asparagus at the beginning of the present century, has since been proved to be a widely diffused constituent of plants.

The powerful smell imparted to the urine immediately after eating the young shoots of Asparagus, directed the attention of physicians at an early period to its diuretic properties, which were found to exist most abundantly in the root. It was also considered gently aperitive, and was used in all obstructions of the viscera and derangements in the functions of the liver. It has been recommended in jaundice, and some other complaints connected with the abdominal viscera. Van-helmont and Ettmuller, with some others of the old physicians, were of opinion that this plant assisted greatly the formation of *calculus* or stone in the bladder, and of gravel in the kidneys. It has been ascertained by experiment, that the *asparagin* possesses the diuretic, and the *green resin* the sedative properties of the plant, but the combination of the two proves more efficacious.

Asparagin has been thus prepared by M. Regimbeau, of Montpellier: "He has the stalks of Asparagus wrapped up in a piece of moistened linen for a few days at the ordinary temperature, until decomposition has commenced, which may be known by the unpleasant smell. They are then beaten in a marble mortar, with a sufficient quantity of water to dilute the viscid juice, which is afterwards pressed strongly through

a piece of cloth, and heated in order to coagulate the albumen and chlorophylle. It is subsequently filtered, and concentrated in a marine bath: it is again filtered and boiled down to the consistence of syrup, and set apart for a fortnight in a cool place. The vessel containing the liquid will be found lined with crystals of asparagin, covered with extractive matter: they are to be purified by washings in cold water or diluted spirit."—*Journal de Pharmacie*.

X.

GEUM URBANUM, L. COMMON AVENS, OR HERB-BENNET.

Nat. Ord. ROSACEÆ.

F. HERBE DE ST. BENOIT, GALIOTE, RECISE. *G.* BENEDIKTENKRAUT, NELKENWURZEL.

Description.—Root perennial, woody, and fibrous. Stem erect, branched towards the top, somewhat angular, hairy, reddish at the base, nearly 2 feet high. Radical leaves on long channelled footstalks, interruptedly pinnate; terminal ones very large, rounded, crenate, 3-lobed; the cauline ones variable, obscurely lobed, nearly sessile, with 2 incised stipules at the base; the whole hairy, deep green. Flowers terminal, pedunculate and somewhat drooping. Calyx divided into 10 pointed segments, the 5 alternate ones smaller than the rest. Petals 5, entire, spreading, unguiculate, nearly round, bright yellow. Stamens numerous; filaments awl-shaped, attached to the calyx; anthers globose. Carpels numerous, superior, compressed; the styles long, hairy, and terminated by simple stigmas. Receptacle elongated, hairy, and surmounting the persistent reflexed calyx. Achenes crowded upon the receptacle; small, unilocular, 1-seeded, and each tipped with a rigid purple awn (the persistent style), which is curved at the extremity. (Plate IV., fig. 1: (a) the calyx, stamens and pistils; (b) a single pericarp.)

Distribution.—Europe, Northern Africa, Siberia, Western

Asia to the Himalaya, Eastern and Western North America. Frequent in woods, hedges, and shady situations throughout Great Britain. Flowers June to August.

Etymology.—The generic name Geum is derived from γεω, to yield an agreeable flavour, in allusion to the roots. Hence also the term *Radix Caryophyllata*, or clove root of the old herbalists, from *caryophyllus*, a clove. Herb-Bennet is probably a corruption of *herba benedicta*, one of its old herbal names. Cows, goats, sheep, and swine eat it: horses are not fond of it.

Properties and Uses.—The root dug up in the spring has an aromatic odour, resembling cloves, which is soon lost. The flavour is aromatic, combined with a peculiar bitterness, and subsequently an astringent taste. The watery infusion reddens litmus paper, and strikes a black colour with sulphate of iron. Submitted to analysis, it yields a large quantity of mucilage and astringent principle, tannin, aromatic resin, and a portion of muriate of lime. By distillation in water a small portion of heavy volatile oil is obtained.

The roots of Avens were formerly applied to the following domestic purposes. A small quantity put into ale, was thought to give it a fine flavour and perfume, and prevent it from turning sour. The young leaves were sometimes eaten in salads; and the roots used to tan leather, and to dye wool of a permanent dark yellow colour. They are astringent, tonic, and antiseptic, and have been used by Continental physicians in the cure of intermittent fevers, being administered in the form of infusion prepared from the roots, which are recommended to be dug up early in spring and selected from plants which grow in dry and warm situations. The powdered root was also used at one time as a substitute for cinchona. In continued fevers it was reputed an excellent cordial sudorific, in the dose of ten grains of the powder, or a wine-glassful of an infusion made by pouring a pint of boiling water on half an ounce of the dried root sliced, and taken when cold. In diarrhoea and dysentery this was considered an invaluable remedy.

The decoction is much stronger than the infusion, but not

so grateful: it may be made with one ounce of the root to a pint and a half of water, boiled down to two-thirds, and then strained; which is to be taken by glassfuls.

The extract has been recommended in cases of extreme irritability of the stomach, where no medicine can be retained but in very small quantity.

XI.

MELISSA OFFICINALIS, L. BALM.

Nat. Ord. LABIATÆ.

F. CITRONELLE, CITRONADE. *G.* CITRONEN-MELISSE, CITRONENKRAUT.

Description.—Rootstock short, slender, cylindrical, somewhat branched, and fibrous. Stems annual, quadrangular, nearly smooth, much branched, 1 to 2 feet high. Leaves opposite, petiolate, ovate, the lower somewhat cordate, serrate, bright green, and clothed with short hairs. Flowers small, numerous, axillary, arranged in semi-whorls, on slender peduncles, and furnished with several small oblong bracts at the base. Calyx pentangular, striated, upper lip tridentate; lower shorter, divided into 2 acute teeth. Corolla white, yellowish, or flesh-coloured, bilabiate, somewhat inflated at the throat; upper lip somewhat vaulted, rounded, bifid; lower with 3 lobes, the central one nearly round. Stamens 4, inserted into the corolla, 2 of them shorter, furnished with roundish anthers. Ovary deeply 4-lobed, with a simple style, terminated by a bifid stigma. The fruit consists of 4 small nuts, enclosed within the persistent calyx. (Plate II., fig. 4: (a) the flower front view; (b) the same side view; (c) the tube of the corolla, showing insertion of the stamens; (d) the ripe fruit.)

Distribution.—Middle and Southern Europe and Western Asia: naturalized in hedges and borders of woods in some parts of the south of England. Commonly cultivated in gardens. Perennial. Flowers July and August.

Etymology.—It derives the name from the Greek μέλισσα, a bee, because of the fondness of bees for its flowers.

Properties and Uses.—The leaves have an agreeable aromatic odour, resembling that of lemons; which is most perceptible just before flowering, and is almost lost in drying. They are slightly aromatic and bitter to the taste. This odour depends on a volatile oil, which it yields in distillation with water. It also contains a bitter principle, which is slightly soluble in water. The watery infusion slightly reddens litmus paper, and affords a deep brown with nitrate of silver. Balm has tonic, cephalic, cordial, and stomachic properties. It was first used by the Arabs to strengthen the nerves and to promote cheerfulness. "It acts as a tonic upon the stomach, increases the appetite, and facilitates digestion; its secondary effects are to augment the circulation, the secretions, and nutrition; hence it has obtained the titles of stimulant, diuretic, diaphoretic, and emmenagogue." It has been employed, more or less successfully, in vertigo, syncope, paralysis, asphyxia, etc.; and was recommended by Hoffman in hypochondriasis, by Rivière in mania, and by Forestus in palpitations of the heart. In certain cases of obstructed menses it is said to have been singularly efficacious.

Its virtues as a sudorific are known to the country people, who make it into tea, which is drunk freely in hysteric affections, headaches, and indigestions. A conserve is also made from it.

A compound spirit of Balm formerly enjoyed great reputation under the name of *eau des Carmes*, or Carmelite water; it was prepared thus:—

Take of Fresh leaves of Balm four ounces;

Outer rind of Lemon, fresh (grated) two ounces;

Nutmegs, and Coriander seeds, of each one ounce;

Cloves, Cinnamon, Angelica root, of each an ounce;

Having bruised the leaves and pounded the other ingredients, put them with a quart of brandy into a glass retort, stop the mouth and set it in a warm place for two or three days. Add then a pint of simple Balm water, and shake the whole well together; after this distil in a sand-bath, till the ingredients are left almost dry, and preserve the spirit in bottles well stopped.

XII.

BERBERIS VULGARIS, L. COMMON BARBERRY.

Nat. Ord. BERBERIDEE.*F.* EPINE-VINETTE, VINETTIER. *G.* BERBERSTRAUCH, SAUERDORN.

Description.—Root woody, creeping, branched, yellowish brown. Stems erect, 6 or 8 feet high. Branches diffuse, covered with a smooth greyish bark, and furnished at each joint with acute spines, generally 3 in number. Leaves inversely ovate, ciliato-serrate, smooth, arranged 4 or 5 together on the branches. Flowers in terminal pendulous racemes springing from the axils of the leaves. Calyx deciduous, greenish yellow, consisting of 6 ovate, concave, obtuse sepals, 3 of them alternately smaller with 3 bracts at the base. Corolla composed of 6 concave rounded petals, bright yellow, with 2 glands at the base of each. Stamens* 6, opposite the petals, tipped with bifid anthers. Ovary simple, cylindrical, terminated by a large, sessile, depressed stigma. Fruit an ovoid, cylindrical berry, a little curved, orange red, tipped with the black style, and containing 2 oblong seeds. (Plate II, fig. 3: (a) cluster of fruit; (b) corolla and stamens; (c) calyx and pistil; (d) berry, cut lengthwise to show the seeds.)

Distribution.—Europe, temperate Asia, Northern Africa. In copses and hedges in many parts of England. Naturalized in Scotland and Ireland. Flowers May and June.

Etymology.—The name is said by Théis to have been borrowed by the Romans from the Arabic word *Berbêrys*. It is called provincially *Pipperidge-bush*.

Properties and Uses.—The juice of the fruit is austere and very acid; it stains blue paper of a deep red colour. The roots boiled in a ley yield a yellow colour, which was used at one time to dye wool, cotton, flax, and was also employed by

* The stamens exhibit a remarkable degree of irritability. When touched at the base by the point of a pin or other instrument, they rapidly approach the pistil, and if the anthers are fully ripe, the pollen is discharged. When put into water or solution of gum, the flowers may be preserved in possession of their irritability for several days.

cabinet-makers. The inner bark of the stem, with the assistance of alum, affords a yellow dye. The leaves are gratefully acid; they are said to be eaten by kine, goats, and sheep, but refused by horses and swine. The ripe fruit forms a well-known preserve. The unripe berries may be pickled in the same manner as capers. The bark and fruit have been used in medicine: the former in diarrhoea and dysentery; the latter, on account of their grateful acid juice, in fevers, bilious disorders, and scurvy. The fruit is variously prepared: it may be made into comfits, syrup, jelly, or jam; and these different preparations may be employed in forming drinks, which in all kinds of inflammatory diseases, scalding of urine, and especially typhus fevers, were taken, it is said, with the greatest advantage. Prosper Alpinus attributes his recovery from the plague to following the advice of the Egyptian physicians, who gave him no other medicine than the syrup of Barberries with the addition of a small quantity of fennel seed. Simon Pauli followed with success the same advice in a malignant fever and diarrhoea, with which he was attacked in Paris, which induced him to recommend very strongly in his works the different preparations of this plant. An excellent gargle for sore throats may be made with the syrup of Barberries.

The inner bark infused in white wine is said to be purgative, and Ray experienced its good effects in jaundice.

The Barberry is an object of dislike to the farmer, on account of its reputed baneful effect upon corn. Dr. Withering says, "this shrub should never be permitted to grow in corn lands, for the ears of wheat that grow near it never fill, and its influence in this respect has been known to extend as far as three or four hundred yards across a field." Nevertheless, this assertion has met with many strenuous opponents. Sir J. Banks supposed that the *Aecidium Berberidis*, a fungus which generally infests the shrub, generates the dust which, carried away by winds, and lighting on wheat and other growing corn, gives rise to the *Puccinia*, a minute fungus which closes up the pores of the leaves and appears like rust or mildew. Recent investigations have, to some extent, confirmed this sup

position; for it is now known that *Puccinia graminis*, which infests wheat, will not reproduce itself, but if the spores of this fungus germinate on Barberry leaves they produce *Æcidium Berberidis*; while, on the contrary, the spores of *Æcidium*, instead of reproducing itself, produce *Puccinia*.

XIII.

ARCTOSTAPHYLOS UVA-URSI, Spreng. BEARBERRY.

Nat. Ord. ERICACEÆ.

F. BUSSEROLE, RAISIN D'OURS. *G.* BEERENTRAUBE, STEINBEERE.

Description.—Root perennial, long, branched, and fibrous. Stems numerous, procumbent, spreading, branched, smooth, and covered with dark, deciduous bark. Young shoots tinged with red, and slightly pubescent. Leaves obovate, or spatulate, entire, coriaceous, glabrous, evergreen, revolute at the margin, reticulated, and attached to the stem by short petioles. Flowers in small crowded terminal racemes, with several bracts at the base. Calyx very small, 5-cleft, obtuse, persistent. Corolla ovate, pellucid at the base, contracted towards the mouth, and divided into 5 reflexed rose-coloured segments. Stamens 10, about half as long as the corolla, and inserted into its base. Anthers 2-celled, with two horn-like appendages. Ovary ovate or globose, superior, seated on a glandular disk, with a cylindrical erect style, terminated by an obtuse stigma. Fruit a small, spherical, depressed, deep-red berry, containing an austere mealy pulp, and 5 cells, in each of which is lodged a hard, brown seed. (Plate III., fig. 4: (a) cluster of ripe fruit; (b) corolla, opened to show the stamens; (c) stamen; (d) berry, cut horizontally to show the cells.)

Distribution.—Arctic and Alpine Europe (except Greece and Turkey), Siberia, and Eastern and Western North America. It is found in the north of England, and in Ireland, and is abundant in the Highlands of Scotland up to an elevation of

3000 feet. It prefers alpine, heathy, and rocky places, and often covers the ground with beds of considerable extent. Flowers May and June.

Etymology.—Its Latin name is derived from ἄρκτος and σταφυλή, the fruit being said to be eaten as food by bears. Horses, cows, goats, and sheep refuse it, but the berries afford an excellent food for the moor-fowl.

Properties and Uses.—The leaves are at first austere to the taste, and have a slight bitterness, which is not unpleasant. When dried and reduced to powder, they have a fragrant smell, and are far more bitter than when recent. The bark is more astringent and less bitter, while the wood is almost insipid. The berries are nearly tasteless, but leave behind a slight degree of astringency.

Both water and alcohol extract the virtues of the leaves, and the watery infusion takes a deep black colour on the addition of sulphate of iron. Chemical analysis has shown that they contain a large proportion of tannin; and Linneus, in his *Flora Lapponica*, p. 130, states, that great quantities of the leaves and branches are gathered in the north of Sweden and sent to Stockholm, where they are bought by tanners for the same purpose as the sumach (*Rhus Coriaria*). They are also used to dye wool. This plant, though known to the ancient physicians, and occasionally employed by them, was first brought into notice in the middle of the last century by De Haen, as a valuable medicine in cases of stone and gravel, and ulcerations of the urinary organs. Since which time it has been employed with great success in excessive menstruation, gonorrhœa, diabetes, and in almost every disease connected with the urinary organs, and also in pulmonary complaints. It was given either in the form of powder, or decoction prepared by simply powdering the leaves, or boiling them in water. Its present use is chiefly as an astringent tonic in bladder affections.

For medical purposes it is recommended that the plant should be procured in autumn; the green leaves alone selected, picked from the twigs, and dried by exposure to a moderate heat.

XIV.

ACANTHUS MOLLIS, L. SMOOTH BEAR'S-BREECH.

Nat. Ord. ACANTHACEÆ.*F.* BRANCHE-URSINE. *G.* BÄRENKLAUE.

Description.—Root long, thick, fleshy, diffuse, fibrous, dark colour externally, nearly white within. Stem cylindrical, upright, simple, firm, 2 to 3 feet high, clothed with flowers from the middle to the summit. Leaves nearly all radical, amplexicaul, very long, smooth, soft, sinuated, and pinnatifid, with many angular clefts. Flowers in a long spike at the top of the stem. Calyx of 4 unequal sepals, somewhat labiate, persistent. Corolla with one lip, which is monopetalous, ample and plane, closed with hairs at the orifice, and divided into 3 lobes at the extremity; the place of the upper lip is usurped by the calyx. Stamens 4, didynamous, with villous anthers. Ovary seated on a disk, 2-celled, supporting a simple style and a bifid stigma. Fruit a 2-celled capsule, opening into two valves; each cell containing a single roundish seed. (Plate III., fig. 3: (*a*) the corolla, stamens, and pistil; (*b*) the pistil; (*c*) the capsule.)

Distribution.—In moist, stony places, in Italy, Egypt, and the south of France. Not a native of Britain, but often cultivated in English gardens, where it has occupied a place since the commencement of the 16th century. Flowers July to September.

Etymology and History.—The generic name derived from *ακανθα*, a spine, does not apply to this species, which is smooth and unarmed; nevertheless it is the *Acanthus*, *par excellence*,—the plant celebrated by Virgil and other poets. It has been renowned for ages, on account of the beauty of its leaves, which furnished the ancient sculptors and architects with one of their chief ornaments. The Greeks and Romans carved them upon their vases and their massive goblets, and wove them into their costly vestments. The discovery of their ornamental character is contained in the following legend: "A young lady of Corinth

having died a few days before her marriage was to have been celebrated, her afflicted nurse put into a basket different articles of which the girl was fond, and placing it near her tomb, upon a plant of the *Acanthus*, covered it with a large tile. The following spring the *Acanthus* grew up, and its large leaves encompassed the basket; but meeting with the projecting tile, they were curved at the extremity and bent down. An architect named Callimachus, passing by, was struck with the novelty and beauty of the figure, and resolved to apply it to the decoration of the Corinthian capital."

Milton enumerates this among the plants which decked the primeval bowers of Eden:—

"On either side
Acanthus, and each odorous bushy shrub
Fenced up the verdant wall."

Properties and Uses.—This was formerly reckoned one of the five emollient plants, and prescribed in cataplasms, fomentations, and lavements, to mitigate inflammatory or nervous irritation. It acts as a slight astringent in hæmoptysis or spitting of blood, diarrhœas and dysentery.

The leaves, boiled and mashed into a poultice, have been recommended as an application to deep-seated abscesses, for the purpose of hastening suppuration. The roots abound in mucilage, and have been substituted for those of comfrey and marsh-mallow.

XV.

HELLEBORUS FŒTIDUS, L.

BEAR'S-FOOT, STINKING HELLEBORE, OR SETTER-WORT.

Nat. Ord. RANUNCULACEÆ.

F. PIED-DE-GRIFON. *G.* STINKENDE NIESEWURZ.

Description.—Root small, twisted, beset with numerous, slender, dark-coloured fibres. Stem cylindrical, firm, leafy, marked with scars of fallen leaves towards the base, much branched, many-flowered, growing to a height of 2 feet.

Leaves on long footstalks, dark green, coriaceous, smooth, digitate or pedate, with numerous pointed, serrated segments. Bracts or floral leaves membranous, entire at the margin; lowermost trifid at the extremity, tinged with purple at the base; upper ones nearly ovate, undivided, pale green. Flowers on long peduncles numerous, terminal, somewhat paniced, drooping, globose. Calyx pale green, composed of 5 ovato-cordate persistent sepals, tinged with reddish purple at the margin. Petals from 8 to 10, small, tubular, 2-lipped, and arranged in a circle within the sepals. Stamens numerous, as long as the calyx, with whitish anthers. Ovaries 3, superior, ovate, compressed; styles subulate; stigmas globose. Fruit of 3 follicles, dehiscing at the apex, containing numerous oval seeds, disposed in two rows. (Plate VI., fig. 4: (a) the stamens; (b) the follicles.)

Distribution.—Chalky pastures, thickets, and way-sides, in most parts of Western Europe, viz., Portugal, Spain, Italy, Switzerland, France and Germany. South and east of England; rare, naturalized. Perennial; flowers February and March.

Etymology.—The name of the genus is derived from *ελειν*, to injure, and *βοφα*, food, indicative of its poisonous properties.

Properties and Uses.—The recent plant has a most fetid odour and bitter taste, and is extremely acrid, excoriating the mouth and fauces when chewed. Like the other plants of the natural order to which it belongs, its virtues are much impaired by age and by the mere process of drying.

The root was at one time much used as a seton in veterinary practice. For this purpose a perforation is made in the flesh of the animal, and a piece of the root being inserted, is left for twenty-four hours; this causes a discharge from the part, and is thought to be efficacious in certain diseases. Hence is derived the provincial name Setter-wort or Setter-grass, corrupted from Seton-wort.

This species of Hellebore is more eminently poisonous than *Helleborus niger*, producing in an over-dose superpurgation, griping, anxiety, syncope, violent pain in the stomach and intestines, a sensation of strangling, coldness of the extremities,

convulsions, and death. The leaves are not unfrequently employed by empirics and ignorant persons, and instances are not wanting of their fatal effects. In the *Oxford Magazine* for 1769, it is related that a labouring man gave some of this plant to his two sons, one six, and the other four years old, to kill worms, and in a few hours they both died. It is also mentioned that those who have taken a poisonous dose and recovered, have lost their hair, nails, and even the epidermis of the whole body. In the *London Chronicle* for 1768, No. 1760, we read that a child lost its life from taking some of the root in the pulp of an apple.

The leaves of this plant were used in this country as a domestic medicine for their vermifuge effects long before their introduction into the *London Pharmacopœia*. Gerard thus alludes to them: "The leaves of bastard Hellebor, dried in an oven after the bread is drawne out, and the powder thereof taken in a figge or raisin, or strawed upon a piece of bread spread with honey, and eaten, killeth worms exceedingly."

For children a syrup has been recommended, made with the expressed juice of the recent leaves moistened with vinegar, which is supposed to correct the violent effects of the drug. Dr. Parr mentions that a tincture is sometimes made of the leaves with cider; but in whatever manner prepared, no medicine acts with more certainty as an anthelmintic than Bear's-foot. It has also been highly extolled in epileptic fits caused by the presence of worms in the intestines, and in asthma and hypochondriacal disorders, but it is a dangerous medicine in unskilful hands, and requires to be used with the greatest caution.

This being classed among the narcotico-acrid poisons requires nearly the same antidotes as the aconite, arum, etc. In the first place, vomiting must be excited and encouraged, if it has not spontaneously commenced.

XVI.

BETA VULGARIS, L. BEET.

Nat. Ord. CHENOPODIACEÆ.

F. BETTERAVE. G. ROTHE RÜBE, MANGOLD.

Description.—Root biennial, fusiform, fleshy, slightly branched, furnished with numerous capillary fibres. Stem upright, leafy, channelled, smooth, branched towards the top, 3 or 4 feet high. Leaves alternate, varying in figure according to their position; lower ones large, somewhat cordate, and obtuse; narrower and pointed, and almost destitute of petioles as they approach the top of the stem; they are all bright green, smooth, and succulent. Flowers 3 or 4 together, on long slender spikes, which spring from the axils of the upper leaves. Perianth (calyx) single, persistent, deeply 5-cleft, and slightly adherent by its base to the ovary. Stamens 5, short, opposite the divisions of the calyx, and supporting roundish anthers. Ovary globose, depressed, surmounted with 2 short styles, terminated by simple acute stigmas. Seed solitary, kidney-shaped, imbedded in the fleshy mass of the calyx, which serves as a capsule. (Plate V., fig. 1: (a) the aggregated fruit; (b) the flower; (c) an isolated fruit surrounded by the persistent calyx.)

Distribution.—Southern and temperate climates, especially in maritime places, but is not indigenous to this country; the *Beta maritima*, however, which grows on our sea-shores, is, probably, the original form of the plant under consideration. Flowers June to October.

Etymology.—The name is said by Théis to be derived from the Celtic *bett*, which signifies *red*. Others imagine it to have been formed from the Greek β , on account of a fancied resemblance of its seeds to that character.

The white, or Sicilian Beet, which has been considered by some authors as a distinct species under the name of *Beta Cicla*, is used for nearly the same purposes as the red. In many parts of the Continent the leaves, deprived of their mid-

rib, are used as spinach, or put in soups, and the midrib is boiled and eaten as chard or asparagus.

Properties and Uses.—The common Beet is a well-known culinary vegetable, extensively used as a pickle and salad; preserved as a confiture, made a substitute for coffee, and yielding a beautiful varnish. A good beer may be made from the roots, and when fermented, a pleasant wine. Submitted to the acetous fermentation, and reduced to a pulp, the Beet-root is the principal ingredient in the substance named *barszcz*, in Poland, which is esteemed a salubrious food, and a preservative against scurvy and putrid fevers.

But the most important product of this plant is the saccharine matter which is produced so abundantly from the roots. The extraction of sugar from Beet-root, first resorted to by Napoleon I. as a matter of necessity, has been carried to such perfection both in France and Belgium as to become a lucrative branch of commerce. At the present time (1876) the Continental supplies of sugar are obtained almost exclusively from Beet-root, and quantities are also sent into this country to compete with cane-sugar. Besides this, many attempts have been recently made in several English counties to grow Beet for sugar-making. To manufacture sugar from the Beet the roots are washed and rasped, the raspings submitted to hydrostatic pressure, so that nearly all the fluid is squeezed out. This juice is thick and clammy, with a disagreeable taste and smell, and is tempered with lime, similar to that of cane-juice, after it is purified by skimming or filtration, and finally crystallized. The use of this plant as an emollient and laxative is now almost forgotten. The leaves softened by a hot iron, or steeped in beer, were a familiar topical application for dressing issues, blisters, certain sores and ulcers, and even in scald-head. The powder of the root, and more especially the expressed juice, is a powerful errhine, and was remarked as such by Galen. It was recommended to be snuffed up the nose in severe headache, catarrhs, and toothache, but it is condemned by Borrich as a dangerous sternutatory.

XVII.

STACHYS BETONICA, L. WOOD BETONY.

Nat. Ord. LABIATÆ.*F.* BETOINE. *G.* BETONIK, ZEHRKRAUT.

Description.—Root perennial, woody, twisted, brownish, furnished with long white fibres. Stem simple, upright, quadrangular, rough with deflexed hairs, about a foot and a half high. Lower leaves cordate-oblong, furnished with long footstalks; upper ones opposite, oblong, and nearly sessile; the whole deep green, obtuse and crenate. Flowers in terminal oblong spikes, rather short and interrupted, with 2 linear, lanceolate, reflexed bracts at the base. Calyx monophyllous, tubular, 10-ribbed, divided at the border into 5-toothed acute segments. Corolla monopetalous, bilabiate, purple, with a cylindrical curved tube; upper lip plane, entire, and obtuse; lower one large and divided in 3 lobes, the middle lobe larger, roundish, and slightly notched. Stamens 4, didynamous; filaments awl-shaped, inclined towards the upper lip; anthers globose, 2-lobed. Ovary superior, rounded, 4-lobed, supporting a simple filiform style, terminated by a bifid stigma. Fruit consists of 4 oval, brown seeds, situated in the bottom of the persistent calyx. (Plate VI., fig. 2: (a) the entire flower; (b) the corolla seen in front; (c) the pistil and part of the calyx.)

Distribution.—Europe, Northern Africa, Western Siberia; in shady places in woods and meadows in England; rare in Scotland and Ireland. Flowers June to August.

Etymology.—Pliny states that the term *Betonica*, altered from *Vetonica*, is derived from the *Vetones*, who inhabited the country at the base of the Pyrenees, and who first brought the plant into notice. This, says *Théris*, is an error; *Betonik* is the true Celtic name of the plant, and it comes from *ben*, the head, and *ton*, good; in allusion to its cephalic properties.

Properties and Uses.—The sensible qualities of *Betony* are rather feeble. The roots have a bitter and nauseous flavour. The leaves together with a slight bitterness, have an austere

and somewhat saltish taste. The flowers exhale a slight aromatic odour, which is soon dissipated. Bartholinus relates, that persons employed in gathering Betony for medical purposes, have been seized with a kind of intoxication, which caused them to commit all kinds of extravagancies. Other similar instances are on record, but if not absolutely untrue, they are greatly exaggerated.

This plant communicates a fine durable brown colour to wool previously impregnated with a weak solution of bismuth.

Few plants have been more lauded by the ancients than this. Dioscorides and Galen speak highly of its powers. It was extolled by Lucius, Apuleius, and Antonius Musa, physician to Augustus, as an infallible remedy in forty-seven different diseases, among which are enumerated paralysis, madness, and consumption. A plaster of Betony has been recommended even in modern days to consolidate fractures of the skull. These extravagant and absurd stories have tended to obscure whatever medical virtues the plant may in reality possess. Murray, with great reason, doubts whether this is the *Βετονική* of Dioscorides, whose description would apply equally well to many other Labiatae. The enthusiasm of the Greeks seems to have descended to the Italians, for it is said there still obtains amongst them a proverb that, "He has as many virtues as Betony."

Most writers agree that Betony is not entirely destitute of remedial virtues. Scopoli speaks highly of its cephalic and corroborant effects. Geoffroy recommends it in paralysis, hemicrania, and vertigo; and Etmuller, in all kinds of headaches. A small handful of the plant infused in half a pint of boiling water, makes an excellent tea, which has been used in bilious headaches and complaints of the stomach. Its efficacy in gout has also been advanced. The roots are said to be emetic and purgative. The dried leaves and flowers are sternutatory, and have been administered in headaches.

XVIII.

CONVOLVULUS SEPIUM, L.

GREAT BINDWEED.

Nat. Ord. CONVOLVULACEÆ.*F.* GRAND LISERON. *G.* ZAUNWINDE, WINDEKRAUT.

Description.—Rootstock long, slender, creeping, fibrous. Stems climbing, weak, angular, twisted, smooth, and often extend several feet in length. Leaves large, alternate, arrow-shaped, smooth, light green, truncate at the base, and supported on long footstalks. Flowers on solitary peduncles springing from the axils of the leaves, with 2 large cordate bracts close to each flower. Calyx small, inferior, divided into 5 ovate permanent segments. Corolla monopetalous, large, campanulate, regular, usually snow-white, or pale pink, with 5 plaits, and 5 shallow lobes. Stamens with subulate filaments, half as long as the corolla, and sagittate, erect, terminal anthers. Ovary globose; style filiform, as long as the stamens; apiculate, with 2 spreading stigmas. Fruit a globose pointed capsule, with from 1 to 3 cells, each containing 1 or 2 large roundish seeds. (Plate V., fig. 2: (a) the calyx; (b) the stamens; (c) the pistil.)

Distribution.—Europe, Siberia, Dahuria, Northern Africa, temperate Northern and Southern America, Australia, New Zealand. Perennial; growing plentifully in this country in hedges. Flowers June to August.

Etymology.—The name is derived from *convolvere*, to entwine. It is sometimes called Bear-bind, With-wind, and Hedge-bells; and is a great ornament to our hedges in autumn, exhibiting its large showy white flowers in great profusion.

Properties and Uses.—The sea Bindweed has been long known as an acrid purgative. This quality resides in a milky juice, which exudes from the plant on being wounded. It was also used as an antiscorbutic, and hence the name Scottish scurvy-grass. The great Bindweed, however, here figured, seems to be the most powerful. The expressed juice of the stem and roots, when dried, concretes into a resin, which was

proposed by Withering as a substitute for scammony, and was recommended by Halley and Dr. Good as a hydragogue purgative in dropsies.

There are two other species of *Convolvulus* indigenous to this country—*C. Soldanella*, which grows on sandy sea-shores, distinguished by its prostrate stem, kidney-shaped leaves, and pale purple or pink flowers; and *C. arvensis*, or small Bindweed, which is known by its creeping root penetrating very deep into the soil, prostrate twining stems, and pale rose-coloured, or white flowers. The latter is found on the borders of most corn-fields, and also by road-sides, flowering from June to September.

XIX.

BETULA ALBA, L. BIRCH.

Nat. Ord. BETULACEÆ.

F. BOULEAU. G. BIRKE, BIRKENBAUM.

Description.—Trunk straight, cylindrical, dividing towards the top into numerous flexible, pendent branches; the bark has a silvery appearance, and when old, peels off transversely. Leaves alternate, petiolate, ovate, somewhat deltoid, acute, irregularly serrate, nearly smooth, and shining. Flowers small, destitute of perianth, amentaceous, and moncecious. Male catkins long, and composed of ternate scales. Stamens 11 or 12, with anthers grouped in fours. Female catkins shorter and more dense, composed of 3-lobed scales, each of which contains 3 flowers. Ovary compressed, 2-celled; styles 2, subulate; stigmas simple. Fruit compressed, membranous at the margin, containing a single seed. (Plate IV., fig. 3: (1) male catkins; (2) female catkin; (a) scale detached from the male catkin; (b) scale from the female catkin; (c) scale of the ripe fertile catkin; (d) ripe fruit.)

Distribution.—Europe, Northern Asia, North America. This elegant tree inhabits woods, especially in heathy soils and in

mountainous countries, flowering in the early spring. It forms extensive natural woods in the Highlands of Scotland, and is one of the last productions of vegetation towards the North Pole.

Etymology.—The name is said to be derived from *betu*, the Celtic appellation of the Birch. Burns has celebrated it as "the fragrant Birk in woodbines drest."

Properties and Uses.—This tree is applied to numerous important purposes by the inhabitants of Sweden, Lapland, and Russia. The Laplanders make of the outer bark, shoes for fishing, baskets, and fishing lines, by weaving slips of it together. The dishes in which their fish is served at table are made of the same materials; and a large thick piece of the bark, well dried, with a circular hole in the centre, the size of the neck, serves them for a cloak, which, when the opening in front is closed with a wooden skewer, keeps them dry in the heaviest rains. The inner bark, which is thick, fleshy, fibrous and brittle, is made into nets; and all the Laplanders prepare leather by steeping the ox-hides, which they obtain from Norway and Sweden, in a warm decoction of the bark for three successive days. This leather they prefer to any other, as it resists the water better. The Laplanders never make the bark into bread, as the Kamschatdales are said to do. (*Flora Lapponica*, p. 271.) In some northern countries, houses are covered with the bark, and it is twisted into torches; good charcoal is made of the wood, and an oil is obtained from the *degot*, or white rind, which gives to the well-known Russia leather its superior qualities. Guetard states, that before and subsequent to the era of Alexander the Great, the white inner bark of the Birch was the only paper used by the Gauls.

While enumerating the various uses of the Birch, we must not omit to notice its manufacture into brooms, and the well-known instruments of castigation, the "birchen sprays." It seems to have been an emblem of authority in the early days of the Roman republic, since it was bound up in the *fascēs* which were carried before the chief magistrates.

The utility of the Birch as a dye has been confirmed by

numerous experiments. It affords a brown, yellow, fawn, or red colour, according to the mode by which it is prepared.

In many parts of the country a wine is made of the sap, which is procured in great quantities by boring a hole in the trunk of the tree early in the spring. The incision should be made at the top of the trunk or the branches, and prior to the appearance of the leaves. The juice thus obtained is limpid and sweetish, and readily passes into the vinous fermentation. Inspissated and set aside for some time in a cool place, it deposits crystals of a sweetish taste, resembling manna.

The medical virtues of this tree are few and inconsiderable, nevertheless it has been much lauded. The juice, before mentioned, given to the extent of from two to five ounces, was esteemed an excellent depurative in cutaneous eruptions, diuretic, diaphoretic, and lithontriptic. Bergius and Rosen state that it is vermifuge. They direct it to be preserved for use by pouring a little oil on the surface, by which means it may be kept for several months. The leaves and the bark have also enjoyed some reputation as detergents and antiseptics. The Muscovite and Swedish peasants apply the leaves to any part affected with rheumatic pains or gout, and experience relief from their sudorific action. The Laplanders obtain from the fissures of the wood in old trees a substance resembling an agaric, which they use as *moza*, and which forms their chief resource in all complaints where there is much pain and but slight inflammation. Linneus further remarks in his *Flora Lapponica*, that it is curious by what means they could have learned the use of this remedy, since it is used nowhere throughout Sweden. They employ it to such an extent, that their faces and breasts are often covered with hideous cicatrices. They also make a plaster, which is used to promote suppuration, by burning the middle layer of the outer bark, and before it is quite consumed, quenching it in water, and then blending it with the resin of the spruce fir to a proper consistence.

XX.

ARISTOLOCHIA CLEMATITIS, L. BIRTHWORT.

Nat. Ord. ARISTOLOCHIE.*F.* ARISTOLOCHE COMMUNE. *G.* WALDREBE OSTERLUZEY.

Description.—Rootstock perennial, long, cylindrical, slender, creeping, and fibrous. Stems simple, upright, round, and striated, growing in a zig-zag direction, about 2 feet high. Leaves alternate, petiolate, smooth, heart-shaped, obtuse, bright green above, paler and veined beneath. Flowers greenish, yellow, 4 to 8 in a cluster, on short peduncles, springing from the axils of the leaves. Calyx monophyllous, tubular, swelling at the base, dilated on one side at the mouth, and lengthened into a strap-like lobe. Anthers 6, sessile on the ovary, which is inferior, oblong, angular, surmounted by a very short style, and a concave stigma, with 6 divisions. Fruit an oval, valvular, 6-cornered, and 6-celled capsule; each cell containing numerous triangular seeds. (Plate VI., fig. 1: (a) the pistil, showing the inferior ovary, the very short style, and the stigma divided into 6 parts, at the base of which the anthers are situated; (b) the ripe fruit, cut transversely to show the 6 cells.)

Distribution.—Europe, from Denmark southwards, and in Western Asia. It occurs in woods, copses, and near the ruins of nunneries in the south-east of England, but it is not indigenous. Flowers June to September.

Etymology.—The generic name is formed from *αριστος*, excellent, and *λοχεια*, the puerperal state, in allusion to its reputed virtues in exciting the lochial discharge; it is called *Clematitis*, from *κληματις*, a little vine.

Properties and Uses.—The root has a slight aromatic smell, and a warm, bitterish taste. The juice gives a red tinge to blue paper, and the aqueous infusion is not altered by sulphate of iron. Spirit is the best menstruum for extracting the virtues of the roots; but by distillation in water, a small quantity of essential oil is obtained, having the odour and

taste of the root. Hippocrates, Galen, and other writers, both of remote and more recent times, highly extol the powers of *Aristolochia*. The root has been used for suppressing uterine purgations, and as an alterant in gout. Dr. Gilibert attributes to the infusion diuretic and emmenagogue properties, and recommends the powder of the root in wine, to be given in chlorosis, dropsical affections, intermittent fevers, and humid asthma.

Dr. Cullen, in his *Materia Medica* says, "In some cases of retention and chlorosis, as a warm and stimulating medicine, I have found it useful. It makes a considerable part of the Portland powder, and has often been employed in the same manner as that powder, to be taken every day for a length of time. But though it may prevent the recurrence of the gouty paroxysms, the long-continued use of such medicines is extremely hurtful, and commonly brings on a general state of disease, more fatal than the original distemper." Its use as a vulnerary, in common with many others, is now obsolete.

There are several other species of *Aristolochia* possessing medicinal properties, and the *A. Serpentaria*, Virginian snake-root, or Birthwort, is a stimulating diaphoretic and tonic.

XXI.

POLYGONUM BISTORTA, L.

BISTORT, OR SNAKEROOT.

*Nat. Ord. POLYGOACEÆ.**F. BISTORTE. G. WEIZENKNÖTERICH, NATTERWURZ.*

Description.—Rootstock perennial, woody, tortuous, dark brown externally, reddish within, about the thickness of the finger, furnished with numerous slender fibres. Stem simple, erect, cylindrical, knotted at the joints, striated, smooth, a foot or eighteen inches high. Leaves alternate, ovate, entire, smooth, and waved; radical ones large, and gradually tapering into a long footstalk; those of the stem smaller, clasping and sub-

sessile, each with a long membranous stipule. Flowers in a terminal, dense, cylindrical spike; each flower supported on a very short stalk, with shining, serrate, membranous bracts at the base. Calyx a light rose colour, divided into 5 segments. Stamens 8, tapering, exserted, with purple anthers. Ovary superior, triangular, supporting 3 filiform styles, each terminated by a small, slightly capitate stigma. Fruit a triangular, pointed nut, containing a single seed, surrounded by the persistent calyx. (Plate VI., fig. 3: (a) two flowers of unequal length, detached from the spike, with the membranous bracts at the base; (b) the pistils; (c) the ripe fruit, accompanied with the persistent calyx.)

Distribution.—Europe (Arctic) Northern Asia, Western Asia to the Himalaya. In moist meadows in various parts of Britain. Flowers June to September.

Etymology.—The name of the genus is taken from *πολυς*, many, and *γωνν*, a joint, in allusion to the numerous joints of the stem. The term *Bistorta* is compounded of *bis*, twice, and *tortus*, twisted, expressive of the figure of the root.

Properties and Uses.—Most parts of this plant are applied to useful purposes. Cattle in general are fond of it, though horses refuse it. The seeds have been used as food for birds and poultry. The young leaves and shoots were formerly eaten in herb puddings, and are still boiled as greens in the north of England, where the plant goes by the name of Easter-giant and Passions-dock. The root, however, is the most valuable part of the plant, possessing great astringency. It has been found to contain a large proportion of tannin and gallic acid; oxalic acid was also detected in it by Scheele.

After repeated washings, the root of *Bistort* loses its styptic qualities, and affords a considerable quantity of fecula, resembling starch, which in many northern countries, especially Russia, is mixed with wheaten flour and made into bread. Dr. Cullen observes, "both by its sensible qualities, and by the colour it gives with green vitriol, and by the extracts it affords, *Bistort* seems to be one of the strongest of our vegetable astringents. As such we have frequently employed it, and particularly in intermittent fevers, in the quantity of three

drachms daily." The powdered root, in doses of a drachm, has also been given in hemorrhage, diarrhœa, and chronic dysentery. The decoction forms an excellent gargle for scorbutic gums and ulcerated sore throat.

XXII.

POLYGONUM HYDROPIPER, L.

ARSMART, OR WATER-PEPPER.

Nat. Ord. POLYGOŒÆ.

F. PERSICAIRE BRULANTE, POIVRE D'EAU. *G.* WASSERPFEFFER,
BITTERNKNÖTERICH.

Description.—Root annual, aquatic, fibrous. Stem smooth, cylindrical, articulated, nearly erect, often branched, tinged with red, about 2 feet high. Leaves simple, alternate, smooth, shortly petiolate, lanceolate, acute, wavy, free from spots, and furnished at the base with short truncated stipules of a reddish hue. Flowers in lax, filiform, drooping, lateral and terminal spikes, furnished with scaly bracts. Perianth (calyx) usually 4-lobed, inferior, persistent, tinged with pink. Stamens 6, with short filaments and roundish anthers. Ovary superior, trigonous, compressed; styles 2, united halfway up, terminated by single stigmas. Fruit a compressed, triangular nut, containing a single seed. (Plate IV., fig. 4: (a) the calyx, laid open to show the stamens; (b) the pistil; (c) the seed, magnified.)

Distribution.—Northern temperate hemisphere, abundant by the sides of lakes and ditches in this country. Flowers August and September.

Etymology.—The specific name is a compound of the Greek *ὕδωρ*, water, and the Latin *piper*, pepper; of which there are synonymes in many languages.

Properties and Uses.—This plant has an acrid, biting taste, slightly resembling that of peppermint, which is supposed to reside in the glandular dots sprinkled over its surface. It loses much of this property by drying, and like arum, the acrimony

is destroyed in the process of distillation. Bergius remarks that the aqueous infusion is blackened by sulphate of iron,—a sure indication of an astringent principle. It has been used to dye woollen cloth of a yellow colour. It is not eaten by any animal. In some parts of Germany this herb is kept in bedrooms for the purpose of dispersing fleas, as these insects, it is said, will not come where it is. Farriers sometimes use it as an application to fungous flesh and ulcers in animals, and a drachm of the powder of the dried herb given in honey is said to destroy a species of worm which often proves fatal to sheep.

The pungency of this plant has caused it to be employed as a rubefacient to the skin, in the same manner as mustard. It has been highly commended for cleansing atonic ulcers, and in gangrene. The leaves infused in boiling water, or a strong decoction of them, were also applied to tumours, bruises, and contusions. Linneus, in his *Flora Succica* states that the Norwegians use the recent herb as a remedy for toothache, either chewed or applied externally in the form of a poultice, or a strong decoction as hot as can be borne.

The plant is not used in modern practice.

XXIII.

SOLANUM DULCAMARA, L.

BITTER-SWEET, OR WOODY NIGHTSHADE.

Nat. Ord. SOLANÆÆ.

F. DOUCE AMÈRE, MORELLE GRIMPANTE. G. ALFRAUEN,
HIESCHKRAUT.

Description.—Root perennial, slender, woody, branched, and fibrous. Stems cylindrical, climbing, shrubby, alternately branched, somewhat angular, 6 or 7 feet high. Bark of the main stem ash-coloured; that of the branches purplish. Leaves alternate, acute, glabrous, sometimes pubescent, on long footstalks; lower ones ovate, somewhat cordate, entire;

upper halbert-shaped. Flowers in elegant, pendulous, cymose racemes, opposite the upper leaves or terminal. Calyx small, divided into 5 obtuse segments. Corolla wheel-shaped, divided into 5 reflexed, equal, acute segments, reddish purple, with 2 whitish green tubercles at the base of each. Stamens 5; anthers large, yellow, united into a cone-shaped figure. Ovary roundish, supporting a thread-shaped style, longer than the stamens, and terminated by an obtuse stigma. Fruit a smooth, oval, scarlet berry, containing numerous seeds, attached to a fleshy receptacle. (Plate VII., fig. 3: (a) calyx, stamens, and pistil; (b) corolla, laid open; (c) a single stamen, showing the mode in which the pollen is discharged from the apertures at the top of the anther; (d) the pistil; (e) the fruit, cut longitudinally to show the position of the seeds.

Distribution.—Europe, Northern Africa, Western Asia, to North-Western India. Introduced in North America. In moist hedges and thickets in this country, embellishing the shrubs round which it climbs for support, with its elegant flowers and brilliant fruit. Flowers June to August.

Etymology.—The etymology of the term *Solanum* is involved in some obscurity; some have derived it from *solari*, to comfort, but the application of this is far from satisfactory. The present species is called *Dulcamara*, from *dulcis*, sweet, and *amara*, bitter, because of its bitter, and subsequently sweet taste in the mouth. The bitter is said to predominate in the spring.

Properties and Uses.—The root and stem of the woody Nightshade, when bruised, diffuse a nauseous odour, and whether fresh or dried, invariably possess the union of properties to which the plant owes its trivial name. M. Guersent thinks that the saccharine principle resides in the ligneous part, and the bitter principle in the cortical part of the old stems. Water extracts the virtues of the plant better than alcohol. An aqueous infusion, from 1 ounce of the twigs, afforded, according to Hartmann and Kuhn, 5 drachms and 35 grains of extract, while the spirituous tincture from a like quantity gave only 2 drachms and a half.

The activity of this plant depends on an alkaloid, called by

Defosses, who first discovered it, *solania* or *solanine*, which is also found in the berries of the garden Nightshade, but not in the leaves. Solania is obtained by treating the filtered juice with ammonia, whereby a greyish precipitate is formed. This deposit, collected upon a filter, washed, and treated with boiling alcohol, yields by evaporation the above salifiable base. When pure, it is white and opaque, having no smell, but a slightly bitter and nauseous taste. It requires 8000 times its weight of hot water for solution, and is but sparingly soluble in alcohol. It has an alkaline reaction, and with acids forms neutral salts. Its action on animals is, to produce vomiting, which is generally succeeded by lethargic drowsiness. The ordinary effects of this plant are narcotic and diuretic. In large doses it occasions nausea, vomiting, syncope, palpitation, and convulsive twitchings of various parts of the body.

Whatever may be the medical value of the Dulcamara, it has been extensively employed in various acute and chronic diseases. Linneus and Carrere employed it with advantage in chronic rheumatism. Many eminent practitioners have recommended it in various diseases. The best effects, however, have been obtained from it in some obstinate cutaneous affections. At the present time Dulcamara is occasionally used, in the form of decoction, in rheumatic or cutaneous affections; its real action seems, however, to be unknown. It does not dilate the pupil of the eye, or produce dryness of the throat like belladonna, henbane, or stramonium. As much as three pints per day of the decoction have been administered without any marked action, and half a pound of fresh berries have been given with no ill effect. Dulcamara is much used in homœopathic medicine.

The twigs are the part employed in medicine, and for this purpose they should be gathered either late in the autumn, or in the early spring. The shoots of a year or two old are the best. From the facts, as stated above, of the administration of the fresh berries without ill effects, the accounts of their deleterious nature have probably been much exaggerated; for Duval also gave sixty, and even a hundred berries to dogs without any appreciable results; and the acute physiologist

Magendie states, that he "would not hesitate to take those substances himself which he has observed to be innocuous to animals." Some cases of their noxious, and even fatal effects on children are recorded. The women of Etruria, according to Matthioli, employed the juice of the berries as a cosmetic; and a decoction of the stems is said to render the skin smooth and pleasant.

The external use of the leaves is now nearly forgotten, but in rustic practice they are sometimes applied externally, in form of poultice or fomentation, by beating up the leaves and stalks with a little hot water, or by making a strong decoction of them. These preparations are deemed of service in all hard and painful swellings, especially those of the knee-joint, or in the female breast; also in all contusions and bruises, for promoting the absorption of extravasated blood, by which means the blackness is speedily removed.

XXIV.

CENTAUREA CYANUS, L. BLUE-BOTTLE, CORNFLOWER.

Nat. Ord. COMPOSITEÆ.*F.* BLUET, AUBIFOIN, CASSELUNETTES. *G.* KORNBLUME.

Description.—Root annual, rather woody, fibrous. Stem slender, branched, striated, covered with loose cottony down, 2 or 3 feet high. Leaves alternate, long, straight, light green, somewhat cottony, especially beneath; lower ones generally toothed towards the base; upper linear and entire. Flowers terminal, capitate, tubular, and 5-toothed; receptacle bristly; involucre imbricated with greenish scales, their margin purple, ciliated, and serrated. Florets of the ray large, azure-coloured, funnel-shaped, those of the disk small and purplish; the latter perfect and fertile, the former neuter. Stamens 5, inserted upon the corolla between its lobes, filaments distinct, anthers united into a tube. Ovary simple, adherent with the calyx, which is placed beneath it, surmounted by a single style sheathed by

the anthers, and terminated by a bifid stigma. Fruit an achene, crowned by a simple spreading pappus. Seed solitary in the pericarp, erect, exalbuminous. (Plate V., fig. 3: (a) floret of the circumference or ray; (b) floret of the disk; (c) the seed crowned by the pappus.)

Distribution.—Europe, Western Siberia, North-Western India. Introduced in North America. Abundant in corn-fields in this country, embellishing them with its brilliant flowers, which appear from June to September.

Etymology.—The name is said to be derived from the Centaur Chiron, who with some plant of this genus was fabled to have cured himself of a wound made by Hercules. It is called Cyanus from *κυανεος*, azure-coloured.

Properties and Uses.—This plant has little to recommend it but its ornamental character. Several varieties are cultivated in gardens, with white and purple flowers, but they must all yield in beauty to the denizen of the fields. The expressed juice of the florets, with the addition of a little alum, makes a good ink; and may also be used as a water-colour, and for staining linen blue. The plant was reckoned in former times antispasmodic, aperient, and diuretic, and contributed to swell the catalogue of vulneraries, being applied to contusions, wounds, and bites of venomous beasts. Ray mentions that the powder is of the utmost service sprinkled over erysipelatous affections. A famous collyrium, called in France *eau de casselunettes*, or break-spectacle water, was made from the flowers, and was deemed an excellent remedy in all cases of chronic inflammation of the eyes, and in dimness of sight.

XXV.

BORAGO OFFICINALIS, L. BORAGE.

Nat. Ord. BORAGINÆÆ.*F.* BOURRACHE COMMUNE. *G.* BORRAGEN, BORETSCH.

Description.—Root long, whitish, divided, fibrous, mostly biennial. Stem much branched, erect, cylindrical, thick, succulent, clothed with stiff hairs; about 2 feet high. Leaves alternate, undulated, hispid, deep green; lower ones obovate, petiolate, and eared at the base; upper ovate, nearly sessile. Flowers large, in terminal drooping racemes, on long peduncles. Calyx divided into 5 deep, linear-lanceolate, persistent segments. Corolla brilliant blue, monopetalous, wheel-shaped; tube short; limb deeply divided into 5 acute segments; orifice closed with prominent teeth, which are obtuse and notched at the end. Stamens 5, very prominent; filaments tapering, converging; anthers oblong, connivent, fixed to the middle and inner side of the filaments. Ovary 4-parted, with a cylindrical style, longer than the stamens, terminated by a simple clavate stigma. Fruit composed of four 1-seeded carpels. Seeds irregular, ovate, wrinkled. (Plate VII, fig. 2: (a) the corolla, at the base of the tube of which are seen the valves bearing the stamens; (b) the pistil; (c) one of the four nuts of the ripe fruit.)

Distribution.—Middle and Southern Europe, Northern Africa. Introduced into America. Having been long cultivated in this country, it has become naturalized, and is sometimes found on rubbish and waste ground. Flowers June and July. Varieties are met with in gardens, with white or purple flowers and variegated leaves.

Etymology.—The name is derived from *cor*, heart, and *ago*, to bring; because the plant was reputed to exhilarate the spirits.

Properties and Uses.—The young and tender leaves are used as salads or pot-herbs, and formed an ingredient, with emon, sugar, wine and water, in the old English beverage

called a "cool tankard." Bees are fond of the flowers, and frequent them much in summer and autumn. The stem and leaves contain a viscous juice of a saltish taste. This juice, or a decoction of the leaves, inspissated, after a few days deposits crystals, which yield a great deal of nitre and muriate of soda, and which deflagrate on burning coals. Geoffroy asserts that this plant attenuates gross and thick humours, removes obstructions, increases the secretions, especially urine, perspiration and expectoration. He ordered it in pleurisy, peripneumonia, and in hypochondriacal and hysteric complaints. A conserve and a distilled water were also directed to be made with the flowers.

Modern authors have proved that the plant has no sensible properties.

XXVI.

RUBUS FRUTICOSUS, L. BRAMBLE OR BLACKBERRY.

Nat. Ord. ROSACEÆ.

R. ROUGE ORDINAIRE, MURIER DES HAIES. G. BROMBEERSTRAUCH.

Description.—Stems very long, sometimes an inch in thickness, deeply furrowed and angular, mostly hairy, when old of a purplish hue, armed with strong prickles. Leaves consist of 5 stalked, acute, serrated leaflets, varying in figure, but generally obovate, the edges and point curved downwards, smooth, dark green above, downy and white beneath. Stipules 3, at the base of the leaves. Flowers in long, narrow panicles. Calyx composed of 5 short, woolly, reflexed segments. Petals obovate, spreading, delicate, and crumpled, white or light pink. Stamens numerous, inserted on the calyx, filaments slender, shorter than the petals; anthers globose, compressed, 2-lobed, and 2-celled, bursting longitudinally. Ovaries numerous, superior, 1-celled; styles small, hair-like, lateral; stigmas simple and persistent. Fruit nearly globular, purplish black, composed of numerous, close, juicy drupes, placed upon a

protuberant, spongy receptacle. Seeds small, solitary, oblong. (Plate V., fig. 4: (a) stamen; (b) pistil.)

Distribution.—Europe (Arctic), Northern Africa, Siberia, Western Asia to Upper India. Common in every hedge in this country. Flowers July to August, ripening its fruit in September.

Etymology.—The name is supposed to be derived from the Latin *ruber* or the Celtic *rud*, red.

Properties and Uses.—The bramble is applied to several economical purposes. It is useful in forming hedges. The shoots are very tough, and are employed by thatchers for binding their roofs, and by straw-hive and mat makers. The well-known fruit is made into pies and puddings by the cottager. The berries, eaten at the moment they are ripe, are cooling and grateful; a little before, they are coarse and astringent; and a little after, disagreeably flavoured or putrid. The injurious effects attributed to them, when eaten plentifully by children, are probably owing to the latter circumstance. A very agreeable wine can be made from them. Some of the wines of France, it is said, are coloured with them. The bramble was considered by the old physicians as a powerful astringent. It was used in all kinds of hemorrhages, whether from the uterus, the lungs, the nose, or any other part of the body. For this purpose the leaves were gathered in the spring, and dried; a good handful of them was infused in a quart of boiling water, and the infusion was ordered to be drunk freely.

The bruised leaves were applied to gangrenous ulcers, and Ettmuller recommends a decoction of the young leaves in wine, to be applied to certain cutaneous affections.

XXVII.

VERONICA BECCABUNGA, L. BROOKLIME.

Nat. Ord. SCROPHULARINEÆ.

F. VERONIQUE AQUATIQUE. G. BACHBONEN, WASSERBUNGEN.

Description.—Root perennial, creeping, whitish, fibrous. Stem cylindrical, smooth, succulent, procumbent, rooting, reddish at the base, 1 to 2 feet high. Leaves opposite, broad, elliptical, glabrous, succulent, with short petioles, and somewhat serrated at the margin. Flowers in lateral axillary clusters, each flower on a slender pedicel, with 2 bracts at the base. Calyx persistent, 4-lobed. Corolla bright blue, monopetalous, wheel-shaped; limb divided into 4 unequal segments, lower one smallest. Stamens 2, inserted into the short tube of the corolla; filaments spreading; with oblong, somewhat arrow-shaped anthers. Ovary superior, compressed laterally, surmounted with a filiform style, and a simple emarginate stigma. Capsule obcordate, compressed, 2-celled, 4-valved, containing many roundish dark-coloured seeds. (Plate VII., fig. 1: (a) the corolla; (b) calyx and pistil; (c) fruit.)

Distribution.—Europe, Northern Africa to Abyssinia, Northern Asia, Western Asia to the Himalaya. Abundant on the margins of ditches, brooks, etc., in this country. Flowers May to September.

Etymology.—The name Veronica is of doubtful origin; it is generally supposed to have been altered from Betonica; that of Beccabunga, is Latinized from the German *bachbunge*; *bach* in German, *beek* in Dutch, and *beck* in provincial English, signifying a brook.

Properties and Uses.—The Brooklime may be used as a spring salad, gathered and eaten with water-cress; and the water speedwell, *Veronica Anagallis*, which closely resembles it in appearance, may be employed in the same manner.

The leaves and stem have a bitterish and subastringent taste, with little or no acrimony. They are shown by chemical experiments, to be subacid and slightly astringent.

Boerhaave, Simon Pauli, and Vogel, speak of the efficacy of this plant in the highest terms, and it has always been a favourite remedy in scorbutic and cutaneous affections.

Dr. Guersent, an eminent French physician, in his *Dictionnaire des Sciences Medicales*, thus describes its character: "In the early spring, when its growth is just commencing, and towards the end of summer, when fructification is proceeding, the Brooklime is merely aqueous, or astringent, and almost tasteless; but when the plant is fully developed, and ready to flower, it has a slightly bitter and acid flavour, rather more acrid and biting than that of water-cress. These sensible properties are much more apparent in those plants which grow on the banks of rivulets, and are exposed to the sun, than in those which vegetate under water or in the shade. Whatever may be its natural affinities, it has certainly less analogy, in a medical point of view, with other Veronicas, than with the family of the *Cruciferae*; it agrees with them in its oily principle, which is pungent and volatile, and only differs from them in being less acrid, and a little astringent. For this reason it is sometimes preferred to more active stimulants, which may occasion too much irritation and heat, and is not unfrequently added to the juice of cruciferous plants to modify their effects. The Brooklime acts in the same manner as those vegetables which are designated by the name of antiscorbutics, though it does not appear to be endued with any special advantages. On account of its exciting and slightly tonic properties, it is suitable in some cutaneous and scorbutic affections; it has also appeared to be serviceable in some kinds of phthisis, and atonic engorgements of the abdominal viscera which have supervened to irregular gout."

The bruised herb has been applied externally, for the purpose of cleansing foul ulcers, and to relieve piles, whitlows, and burns.

XXVIII.

CYTISUS SCOPARIUS, Link. BROOM.

Nat. Ord. LEGUMINOSÆ.*F.* GENÊT À BALAIS. *G.* PFRIEMENKRAUT, BESENGINSTER.

Description.—Root hard, woody, furnished with several oblique fibres, yellowish. Stem shrubby, ascending, angular, 3 to 8 feet high, branched with numerous straight, flexible, long, angular, smooth, evergreen twigs. Leaves ternate, solitary, oblong, downy, on footstalks of different lengths. Flowers large, papilionaceous, bright yellow, axillary, solitary or in pairs, on simple peduncles longer than the leaves. Calyx tubular, purplish, divided transversely into 2 lips, the upper entire or with 2 small teeth, the lower 3-toothed. Corolla composed of 5 petals; vexillum or standard large, broadly ovate, and reflexed; alæ or wings elliptical, spreading, convex, and united with the filaments; keel formed of 2 petals, connected at the margin by soft hairs. Filaments 10, 9 of which are united at the base; unequal, incurved. Anthers oblong, orange coloured. Ovary compressed, oblong, hairy, supporting a slender, curved style, with an oblong stigma. Legume flattened, oblong, hairy at the margin, deep brown, containing numerous roundish, compressed, shining seeds. (Plate VIII., fig. 2: (a) the calyx; (b) stamens; (c) the pistil; (d) the legume or pod.)

Distribution.—Europe, Northern Africa, Western Asia. In this country it is abundant on heaths and commons. Flowers May and June.

Etymology.—The etymology of the name is obscure, but it is supposed to be formed from the *κυρισος* of the ancient Greeks; said to have been so denominated from the isle Cythnos, one of the Cyclades.

Properties and Uses.—The Broom is applied to many useful purposes in domestic economy and agriculture. The flower-buds, pickled in vinegar, have been substituted for capers; and the roasted seeds have been proposed as a substi-

tute for coffee. The young and tender branches are sometimes mixed with hops in brewing. In Tuscany, the stems of this plant, after being steeped, furnish a very strong fibre, which is manufactured into coarse cloth and cordage. In order to procure this substance, the branches are cut and laid in the sun; when they are quite dry, they are tied up in bundles and thrown into the water, being loaded with stones to make them sink, in the same manner as hemp. When the twigs are sufficiently soaked, they are taken out of the water and placed upon a sharp stone; the bark is then stripped off, and the fibrous part is well beaten; when dry it is carded and spun, and used for the same purposes as flax. The branches have also been used for tanning leather, for thatching cottages and ricks, to be made into besoms, and as a winter food for sheep. The old wood furnishes a beautiful material for veneering.

The leaves and stalks of the common Broom have a nauseous and bitter taste, which they give out by infusion, both to water and rectified spirit; the latter infusion is of a dark green, and the former of a brownish colour. An extract prepared from the above possesses all the virtues of the plant.

Broom-tops are esteemed as cathartic and diuretic; they are most celebrated for the latter property. A decoction has been used in the cure of dropsy.

The flowers, infused in hot milk, have been applied to tetters and other obstinate cutaneous affections; the decoction being at the same time used internally. Ray mentions, that the seeds and flowers are reputed emetic and cathartic, which Woodville appears to doubt, because "the former, when roasted, have been used as a substitute for coffee, and the latter employed as a pickle." This objection is far from conclusive, when we reflect that the simple process of roasting or pickling is capable of dispersing even noxious qualities in many vegetables. For medicinal purposes the younger twigs, both in the fresh and dried states, are used. They have a nauseous and bitter taste, and in the fresh state emit, when bruised, a peculiar odour. The principles of the plant are an acid body called *scoparin*, and an alkaloid called *sparteine*. Stenhouse ascertained that the amount of these two principles depends

much on external conditions, "Broom grown in the shade yielding less than that produced in open sunny places. He states that shepherds are well aware of the shrub possessing narcotic properties, from having observed their sheep to become stupefied and excited when occasionally compelled to eat it."—*Pharmacographia*, p. 150.

The plant is still used as a diuretic and purgative, being applied both in the form of a decoction from the dried, and the juice from the fresh, plant.

XXIX.

BRYONIA DIOICA, L.
RED-BERRIED OR WHITE BRYONY.

Nat. Ord. CUCURBITACEÆ.

F. VIGNE BLANCHE, COULEUVRÉE. *G.* ZAUNREBE, GICHTRÜBE.

Description.—Root perennial, very large, fleshy, yellowish-white, marked with superficial transverse lines, fibrous and branched towards the lower part. Stems usually 5 or 6 feet long, slender, herbaceous, branched, channelled, covered with small rough hairs, and climbing by means of numerous simple tendrils. Leaves large, alternate, palmated, with 5 acute, irregularly toothed lobes, rough on both sides with minute callous points, and supported on long stalks, from whose base proceeds a long, simple, spiral tendril. Flowers dioecious, in small clusters, springing from the axils of the leaves: male flowers have a short, campanulate, 5-toothed calyx, a monopetalous corolla, with 5 ovate, spreading segments, yellowish-white, streaked with green veins, and 3 short filaments, 2 of which are furnished with double anthers; female flowers have a calyx and corolla, resembling those of the male, but smaller. Ovary inferior, 1-celled, surmounted by a short, erect, 3-cleft style, terminated by large, spreading stigmas. Fruit a globose berry, 1-celled, many-seeded, about the size of a pea, at first afterwards bright red. Seeds about 5 or 6 in number,

small, ovoid, compressed, and enveloped in a mucilaginous pulp. (Plate VIII., fig. 3: (a) corolla, spread open to show the anthers; (b) ovary, with its style and stigmas; (c) ripe fruits.)

Distribution.—Europe from Denmark southwards, Northern Africa, Western Asia. Abundant in hedges and thickets in England, but rare in Scotland. Flowers May to September.

Etymology.—The genus is named Bryonia, from $\beta\rho\nu\omega$, to increase or grow rapidly, in allusion to the quick growth of the plant. This species is called provincially Wild Vine, and Tetter Berry.

According to Miller, the roots of Bryony were formerly carried about the country and exhibited as mandrakes by certain impudent impostors, who thus reaped a golden harvest from the credulity of the common people. The mode by which they obtained a resemblance to the human figure was this:—they found a young, thriving Bryony plant, and opened the earth round it, taking care not to disturb the lower fibres; and being prepared with a mould, such as is used for making plaster of Paris figures, they fixed it close to the root, and fastened it with wires to keep it in its place; then, filling up the earth carefully to the root, they left it to assume the prescribed figure. As it grows very rapidly, their object was generally accomplished in one summer. The leaves also were sold for those of the mandrake, though they bear no resemblance to each other.

Properties and Uses.—The root of this plant seems to bear a considerable resemblance to that of arum. In its recent state it has a very disagreeable odour, and a nauseous, bitter, acrid taste, and is undoubtedly poisonous; but the deleterious principle may be so far dissipated by repeated washings with water, as to afford a fine and white fecula, capable of furnishing an alimentary substance, which in seasons of dearth is the more valuable, as the root is very abundant and very voluminous. Dioscorides informs us, that the young shoots may be eaten as asparagus; but he adds, they augment the quantity of the fæces and urine. The odour of the berries is slightly nauseous, and the taste insipid. A few of them have been

eaten without any remarkable effect being produced, but in all probability they partake of the noxious qualities of the root.

A substance has been detected, by Brandes and Firnhaber in the root, to which the name of *bryonine* has been given; besides which, the root contains a large portion of gum and starch, a little sugar, some woody fibre, malate and phosphate of lime, and a peculiar vegeto-animal matter. Bryonine is intensely bitter, soluble both in water and alcohol, and appears to be the active principle of the root from which it is derived. Twenty-two grains of this substance killed a rabbit in ten hours, and thirty-four grains thrust under the skin of the neck and back of a dog, killed it in fifty-eight hours, causing extensive inflammation and suppuration around the wound. Bryonine, therefore, is a pure irritant, which does not appear to act through absorption. The improper administration of the root of Bryony has been followed by violent vomitings, accompanied with faintings, intense pain, profuse alvine evacuations, and the other effects of an acrid cathartic.

The following case of poisoning is recorded in the *Gazette de Santé*, Dec., 1816. The writer says, "I was called a few days ago to the assistance of a lying-in woman, whose infant was dead, and to whom a surgeon in the village ordered a drink prepared with an ounce of Bryony root infused in a quantity of water, and a strong decoction of the same as a wash, to stop the secretion of milk. On my arrival, four hours after this remedy had been taken, she expired."

The root has been long known as a powerful cathartic and diuretic, and the juice, obtained from it by incision or otherwise, is a popular remedy in many countries. In Germany and Sweden the peasants scoop out a portion of the root and fill the cavity with beer, which in the course of a night becomes emetic and purgative. The milky juice will exude for two or three days together in considerable quantity, and may be collected as the cavity becomes full. It was recommended by Dioscorides as a remedy in epilepsy. Arnaldus mentions a case of epilepsy which was cured by these means in three weeks. It has also been employed in dropsy, asthma, hysteria, and obstructions of the viscera.

Bryony root has been considered as capable of furnishing various degrees of purgatives from the laxative to the drastic, it has also been used in dropsy as an emmenagogue, and as a vermifuge. With regard to this latter use, there are some extraordinary stories on record of its efficacy in expelling toads and frogs, and several nondescript animals, from the abdomen.

As an external application, Bryony enjoyed the character of a powerful discutient. It was applied in the form of a poultice to painful tumours, lumbago, and sciatica. Ettmuller recommends it in hydrocele and cedematous swellings of the feet and legs. Zacutus Lusitanus affirms that the expressed juice, made into an ointment with an equal quantity of turpentine and a small proportion of wax, has been known to cure scrofulous tumours. For medical purposes, the root should be dug up in the spring, cut into thin slices, and dried quickly in a warm room. It does not long retain its virtue. As a medicine the infusion seems to have been considered the best form.

The Black Bryony (*Tamus vulgaris*) is sometimes confounded with the plant just described. It is, however, quite distinct, belonging to the Nat. Ord. *Dioscoreaceæ*. It has a small, greenish-white perianth, divided into 6 deep segments, in the female flowers contracted at the neck; ovate, shining, red berries; heart-shaped, acute, entire bright green leaves; very long, twining stems; and a large fleshy root, black externally. It flowers in June. Dr. Withering states, that the young shoots are good eating, dressed like asparagus. The Moors eat them boiled with oil and salt. The root, which very much resembles that of the *Bryonia dioica*, except in colour, has been extolled by some writers, while others deny that it possesses any medicinal virtues. Sir John Hill affirms, that it is "a very powerful remedy in nephritic cases, though not known in the shops, or used in modern practice. A syrup made with it is useful in asthma, and the bruised root has given relief in paralytic cases."

XXX.

MENYANTHES TRIFOLIATA, L.

BUCKBEAN, OR MARSH TREFOIL.

Nat. Ord. GENTIANEE.*F.* MENYANTHE, TRÈFLE D'EAU. *G.* WASSERKLEE, BITTERKLEE.

Description.—Rootstock consists of numerous fibres, proceeding from long, creeping, cylindrical, jointed rhizomes. Stem a simple, naked, cylindrical scape, about a foot high. Leaves radical, consisting of 3 smooth, obovate, obtuse, entire, bright green leaflets, somewhat undulated at the margin, seated on a very long petiole, shorter than the flowering stem. Flowers in a compound raceme, at the extremity of a scape which issues from the sheathing base of the leaves; each flower supported by a pedicel, with a small, ovate, acute bracts at the base. Calyx smooth, divided into 5 deep, ovate segments. Corolla funnel-shaped, longer than the calyx, with a spreading limb composed of five ovate-lanceolate, acute segments, white, fringed internally with beautiful filaments, and tipped with rose colour. Stamens 5, filaments awl-shaped, alternate with 5 hypogynous glands. Anthers sagittate, brownish yellow. Ovary oval, surmounted by a simple style, longer than the stamens, and a capitate stigma, furrowed externally. Capsule oval, furrowed, 1-celled, 2-valved; valves bearing the seed in their axis. Seeds globose, or somewhat lenticular, smooth, shining, pale yellow. (Plate VII., fig. 4: (a) the corolla, opened to show the stamens; (b) the fruit.)

Distribution.—Europe (Arctic), Siberia, Dahuria, North-Western India, North America. Frequent in marshes and watery meadows in this country. Flowers May to July.

Etymology.—The generic name, is supposed to be derived from *μήνη*, a month, and *ανθος*, a flower, because it continues in flower about a month. It is called *Trifoliata*, from the similarity of its three leaflets to those of trefoil. They were considered to resemble those of the common garden bean; hence, the vernacular names Buckbean and Bogbean.

term Buckbean is probably an alteration of the old English *beck*, a brook, or watery place.

Properties and Uses.—The Buckbean has no smell, but develops an intense bitterness, which it imparts both to alcohol and water, either by infusion or maceration. The root affords a small portion of volatile oil, and a gum-resinous substance, which, in addition to its bitterness, exhibits considerable acidity and astringency;—this is not perceptible to the taste, but is rendered very evident by the dark colour produced in the decoction by sulphate of iron. It also contains a small quantity of fecula, to which its nutritive properties are owing.

Linneus informs us that in some parts of Lapland, where the Buckbean abounds, the roots are dug up and given to cattle, who eat it freely, instead of their usual food. In times of scarcity, the dried and pulverized roots, mixed with a little wheaten flour, are not less useful as food for the distressed inhabitants of that country; but the bread thus made, is designated by Linneus as very bitter and detestable. The peasants of Westrogothia frequently use the leaves instead of hops for preserving their beer, which is thus rendered of an agreeable flavour as well as defended from acidity. It has been recommended for the same purpose to the poor of this country; two ounces of the dried leaves being reckoned equivalent to a pound of hops. In dyeing, they afford, according to Bechstein, a green and yellow colour.

The Buckbean is eaten by goats, and occasionally by sheep. It has been asserted, that sheep affected with the disease called rot are quickly recovered by feeding in the marshy meadows where this plant abounds.

Like most of the *Gentianeæ*, and other bitter plants, the Buckbean acts as a powerful tonic on the animal economy. Its exciting influence upon the stomach and intestines, when administered in a large dose, is such as to produce vomiting and purgations; as observed by Willis, when it was given in powder to the extent of two scruples; but in a small dose its action is very different.

In many countries, especially in Germany, this plant has been used medicinally for a long period, and esteemed almost

a panacea. Its efficacy has been extolled in nervous diseases, such as periodical headaches, hypochondriasis, palpitation of the heart, paralysis, etc. Willis used it as a vermifuge for children, in the dose of half a drachm to one drachm every morning, fasting, for several days together, which was followed by an abundant evacuation of intestinal worms. Simon Pauli, Dodoens, Willis, and others, have eulogized it more or less as a remedy in icterus and abdominal obstructions, uterine hæmorrhages, dropsy, cachexia, scrofula, and rheumatism. It has been lauded even in pulmonary consumption; its efficacy in intermittent fevers, however, is better authenticated. It has consequently been used as a substitute for bark, and as it grows in marshy districts, where remittent and low fevers abound, it has been deemed by some as a specific in those diseases. The celebrated Boerhaave, in his own case of gout, found benefit from drinking the juice mixed with whey; and Dr. Alston and others bear witness to its efficacy in keeping off the gouty paroxysms. Dr. Cullen relates, that "he had several instances of its good effects in some cutaneous diseases of the herpetic or seemingly cancerous kind. It was taken by infusion in the manner of tea." Externally, it has also been variously employed. Schulz found the pain of gout mitigated by applying the fresh leaves to the part affected. The juice has been used as a detersive in scorbutic and other ulcers. The decoction has been administered, in baths and fomentations, in some chronic diseases of the skin. "But it must not be forgotten, that its application to ulcerated parts has been followed by swelling and inflammation; and its internal use by dyspnoea. And though these ill effects are soon dissipated by the suspension of the medicine, they form a sufficient reason for abstaining from it in plethoric subjects, in delicate and irritable habits, and in all diseases accompanied with inflammation."—*Flore Medicale*."

The leaves should be gathered in May and June, before the flowers are perfectly developed; and being well dried, they may be preserved for use.

XXXI.

RHAMNUS CATHARTICUS, L. COMMON BUCKTHORN.

Nat. Ord. RHAMNEÆ.*F.* NERPRUN, BOURG-EPINE. *G.* KREUZDORNBEEREN, WEGDORN.

Description.—A much branched, rigid shrub, 5 to 10 feet high. Wood of a yellowish colour; bark smooth, dark brown. Leaves alternate, simple, ovate, petiolate, downy when young, subsequently smooth, finely serrated, deep green, marked with parallel and convergent nerves; the serratures glandular. Flowers dicecious, greenish yellow, in dense fascicles in the axils of the leaves; each flower supported on a slender pedicel. Calyx of male flower campanulate, with 4 ovate segments; petals 4, oblong, ovate, at the base of which the 5 stamens are inserted. Female flower has 4 linear, incurved petals, abortive stamens, an inferior ovary, and 4 spreading styles, united half-way up, terminated by a small stigma. Fruit small, globose, black, containing a nauseous pulp, and generally 4 seeds, ovate, rounded at the back, and flattened at the sides. (Plate X., fig. 2: (a) male flower; (b) female flower; (c) ripe berry.)

Distribution.—Europe, Northern Africa, Siberia. Cultivated in United States. Frequent in woods and hedges in many parts of England. Flowers May to July. Fruits ripen in September.

Etymology.—The generic name is derived from the Latin, *ramus*, which was formed from the Greek, *ρᾱμνος*, and that from the Celtic, *ram*, a branch.

There is another species indigenous to Britain, the Alder Buckthorn (*R. Frangula*), the berries of which are dark purple, and contain 2 seeds. Gathered before they are ripe, they dye wool green; when ripe, a bluish green. The bark has been used in medicine as a purgative, and affords a yellow dye. The leaves are eaten by goats and sheep; the flowers are peculiarly grateful to bees. The wood is used for making charcoal in the manufacture of the better kinds of gunpowder, and is known as dogwood.

Properties and Uses.—The unripe berries of the common Buckthorn yield a saffron-coloured juice, which is used to stain maps or paper. From the ripe berries sap-green (*vert de vessie*, Fr.; *saftgrün*, Ger.) is obtained, nearly equal to that prepared from the Avignon berries; but if the fruit is gathered late in autumn, the juice is purple. The wood furnishes an excellent material for turnery, and the bark affords a yellow and brownish red colour. Goats, sheep, and horses eat the leaves, but cows refuse them. Homberg mentions that the flesh of birds which feed on the berries is purgative.

The ripe berries contain a green succulent pulp, of an unpleasant odour, and a bitter, nauseous, and somewhat acid taste. The aqueous infusion is reddened by nitric and sulphuric acid, and is rendered black by sulphate of iron. The berries yield a colouring matter, as already mentioned, of a greenish yellow colour, which is found in the fruit of many other *Rhamnææ*, and is thought to contain tannin, albumen, acetic acid, sugar, and an azotized substance. Buckthorn berries have been used medicinally from time immemorial as a drastic purgative. They do not operate, however, without producing severe griping, with dryness in the throat, which require considerable dilution to obviate. The most convenient, as well as pleasant method of taking this medicine, is in the form of a syrup prepared from their juice, which has been highly commended in dropsy, chronic diseases of the skin, gout, etc. It was frequently prescribed by Sydenham. This acute physician, however, did not overlook the thirst and dryness of the throat produced by it; and therefore ordered a basin of soup to be taken immediately after it, to obviate these effects.

Its use at the present time is much more as a medicine for animals than for man. The bark has been recommended as a tonic, or gentle astringent, taken either in powder or decoction; in the latter form it has also been used in inveterate inflammation of the eyes, and in some obstinate cutaneous diseases. Both the common and the Alder Buckthorn are frequently employed in veterinary practice, as brisk purgatives for cattle.

The berries of the latter are thought to be inferior to those of the former, for which they have been substituted; but the fraud may be discovered by opening the berry, which in the common Buckthorn contains four seeds, in the Alder Buckthorn only two.

XXXII.

AJUGA REPTANS, L. BUGLE.

Nat. Ord. LABIATÆ.

F. BUGLE RAMPANTE, PETITE CONSOUDE. G. KRIECHENDER,
WEISERGÜNZEL.

Description.—Root perennial, slender, very fibrous, greyish colour, stoloniferous. Flowering stem erect, simple, quadrangular, smooth or somewhat downy, 6 to 12 inches high. Leaves opposite, ovate, somewhat crenate, more dense towards the root, broad, and tapering into a footstalk. Flowers purplish blue (sometimes white or flesh-colour), nearly sessile, disposed in whorls, rising from the axils of the bracts, which are often purplish. Calyx short, persistent, monophyllous, with 5 nearly equal, pointed segments. Corolla monopetalous, irregularly labiate; upper lip short, erect, composed of 2 very small teeth; lower one larger, spreading, 3-lobed, the middle lobe emarginate, ample. Filaments incurved, longer than the upper lip, didynamous. Ovary superior, 4-lobed, depressed in the centre, surmounted by a simple incurved style, terminated by a bifid stigma. Fruit consists of 4 ovate-oblong grains, situated in the bottom of the persistent calyx. (Plate IX., fig. 1: (a) an isolated flower; (b) the calyx; (c) the pistil.)

Distribution.—Europe, France, Germany, Denmark, etc. Abundant in copses, woods, and moist meadows in this country. Flowers from May to July.

Etymology.—The derivation and meaning of the term *Ajuga* have somewhat puzzled etymologists. Some have derived it from *abigo*, to drive away, or from *a*, privative, and *jugum*, a yoke. The common name, Bugle, is taken from

Bugula, which is supposed to be a diminutive of *Buglossum*, which this plant somewhat resembles in medical properties.

Properties and Uses.—The economic uses of this plant are few. The Italians are said to eat the young shoots, in spring, as a salad. Sheep and goats eat it; horses and swine refuse it. Brugmans considers it hurtful in meadows, but he does not state for what reason.

The leaves are sweetish to the taste at first, subsequently rather bitter and astringent. The root manifests a slight astringency, and a strong infusion is rendered black with sulphate of iron.

This plant, though long banished from the pharmacopœias, was highly extolled by some of the ancient physicians, and is still occasionally resorted to in rustic practice. It is well described by the author of the *Flore Medicale*, as follows: "The more we examine the feeble qualities of Bugle, the more we are astonished to see it occupy an eminent place in the ancient pharmacologies. Ettmuller and Rivière deemed it efficacious in pulmonary phthisis and quinsy; Camerarius and Dodoens prescribed it in obstructions of the liver; Mauchart gave it a place in his *eau viscerale*. It has been recommended, says Fourcroy, in hæmorrhages, spitting of blood, emaciation and dysentery, and the name of *petite consoude* has been given it, because it was thought capable of soldering, if we may so speak, the wounds of blood-vessels. The bruised leaves were applied to ulcers, cuts, and contusions; they were also an ingredient in the *eau d'arquebusade*. The more scrutinizing observations of the present day, however, have stripped the Bugle of all its renown. Indeed, far from enjoying any pre-eminence, it is less valuable than some of the commonest *Labiata*. Its distilled water, says Gilibert, is no better than common water, and this much-vaunted vulnerary only cures wounds which nature would soon have healed without any assistance."

A strong infusion of the plant, mixed with a little honey of roses, has been recommended in ulcers of the mouth and throat.

XXXIII.

ANCHUSA OFFICINALIS, L. BUGLOSS.

Nat. Ord. BORAGINÆÆ.*F.* BUGLOSSE. *G.* OCHSENZUNGE.

Description.—Root perennial, oblong, branched, about the thickness of the finger, reddish brown externally, nearly white within, succulent and inodorous. Stem nearly 2 feet high, covered with thick rough hairs. Leaves alternate, oblong-lanceolate, entire, clothed with hairs, each of which proceeds from a hard white tubercle. Flowers in unilateral, crowded, terminal spikes. Calyx persistent, monophyllous, with 5 deep, oblong, acute segments. Corolla purplish blue, monopetalous, funnel-shaped; mouth of the tube closed with 5 bearded scales; limb spreading, divided into 5 rounded segments. Stamens 5, short, alternate with the scales, and terminated by oblong anthers. Ovary divided into 4 rounded lobes, from the centre of which rises a simple filiform style, tipped with a bifid stigma. Fruit consists of 4 oval wrinkled nuts, concave at the base, fixed to the bottom of the calyx. (Plate IX., fig. 2: (a) calyx; (b) corolla; (c) the same opened to show the stamens and valves; (d) the pistil.)

Distribution.—Europe, Western Asia. An alien in this country, but occasionally met with in waste places near the sea. Flowers June to July.

Etymology.—It was formerly called Buglossum, hence the English name Bugloss, and its synonymes in many other languages, from βους, an ox, and γλωσσα, a tongue, in allusion to the long rough leaves.

Properties and Uses.—According to Linneus, the tender leaves of Bugloss afford a wholesome and nutritious food, and are often boiled and eaten like cabbage. The leaves are juicy and the roots mucilaginous. Animals in general will feed on the plant. The flowers are melliferous, and very attractive to bees.

This plant bears a very striking analogy in its properties

to borage, for which it is often substituted. They equally abound in a viscous juice, and both were highly extolled by the therapeutists of old as cordials, tonics, and exhilarants. They were reckoned particularly serviceable in melancholy and hypochondriacal diseases, and in inflammatory complaints. Ray considered them to possess anti-epileptic virtues, and Chomel states that he found a decoction of the leaves useful in dysentery.

A preparation made from the root of this plant is used by the Chinese, for promoting the eruption of the small-pox.

XXXIV.

ARCTIUM LAPPA, L. BURDOCK.

*Nat. Ord. COMPOSITÆ.**F. BARDANE, GLOUTERON. G. KLETTE, ROSKLETTE.*

Description.—Root biennial, thick, long, cylindrical, fusiform, brownish externally, white within, somewhat branched and fibrous towards the base. Stem herbaceous, annual, branched, striated, sometimes tinged with purple, 3 or 4 feet high. Lower leaves very large, alternate, cordate, petiolate, toothed or somewhat crenate at the margin, green above, slightly cottony beneath; gradually decreasing in size towards the top of the stem, so as to be nearly ovate. Flowers on short peduncles, purplish, more numerous towards the top of the stem. Involucre globose, greenish; scales imbricate, lanceolate. Florets surrounded by the involucre, and seated on a paleaceous receptacle. Corolla with a long slender tube, and a regular ovate limb, divided into 5 linear spreading segments; filaments hair-like, very short; anthers forming a cylindrical tube as long as the corolla. Ovary oblong, downy; style filiform, longer than the stamens; stigma reflexed. Fruit of many solitary, oblong, brown, angular grains, crowned with a simple and short pappus. (Plate VIII., fig. 1: (a) involucre cut through vertically, showing the situation of the fruit; (b) floret of the natural size; (c) isolated fruit or achenium.)

Distribution.—Europe, Northern and Western Asia. Abundant by road-sides and waste places in this country. Flowers July and August.

Etymology.—The generic name is derived from *αρκτος*, a bear, in allusion to the roughness of the fruit. It is well known in rural districts by the name of Bur and Clot-bur, from the singular manner in which its hooked bristles adhere to every object with which they come in contact; hence the specific name *Lappa*, from *λαβειν*, to lay hold of, or as some think, from *Uap*, a hand, in Celtic.

Boys in the country have a method of catching bats by throwing up the tenacious involucre of this plant, whitened with chalk, in the way of their flight; the bats, attracted by the object, hasten towards it, entangle their membranous wings in its hooked bristles, and are thus brought to the ground.

Properties and Uses.—The stems of Burdock before the flowers appear, stripped of their outer rind, have been proposed as a substitute for asparagus, or to be eaten with vinegar and the yolk of eggs, in the form of a salad. The root contains a saponaceous substance, which has been advantageously employed in washing; pure starch has been obtained from it, and the ashes produced by burning the plant green, between the period of flowering and seeding, yield a large proportion (nearly one part in three) of very pure subcarbonate of potass. Schœffer fabricated a greenish white paper from the outer rind of the stem. Few quadrupeds browse upon this plant, except the ass, and occasionally kine and goats; birds feed on the seeds, and snails and caterpillars on the leaves.

Virgil recommends it to be extirpated from meadows in which sheep are fed, as it lessens the quantity of their wool.

Besides the subcarbonate of potass already mentioned, it is said to yield salts of nitre, and a large quantity of inuline. The roots have a sweetish taste at first, followed by a slight austerity and bitterness; their juice slightly reddens litmus paper. The leaves and seeds are bitter, with a slight acidity; the bitterness of the seeds appears to reside in the integuments, the interior being of a farinaceous and oily nature.

The Burdock enjoyed great reputation formerly as a detergent, diuretic and diaphoretic. Ancient authors, as usual, are very loud in its praise. Simon Pauli extols its effects in *lues venerea*, especially in patients already emaciated or of very delicate constitutions. Henry III. King of France, according to Riverius, was cured of this disease by Petrus Pena, who administered to him a decoction of the root; Casalpinus found the same decoction useful in cases of bloody and purulent expectoration; and Forestus mentions a case of gout cured by this remedy. Sir John Hill in his work on the management of the gout with the virtues of Burdock, London, 1777, considered it quite a specific in gout, to which disease, however, he at last fell a victim. Similar praise is bestowed upon it as a remedy in calculous and gravelly disorders. Lieutaud relates an instance of its efficacy in obstinate rheumatic pains.

Externally, the leaves of the Burdock have been found extremely resolute as an application to indolent tumours, and have been used with success by empirics to certain swellings of the knee joint, which had excited the greatest alarm. The manner in which it has usually been applied, has been by boiling the leaves in urine and bran, and forming them into a poultice. The bruised leaves, or the rasped root, are found an excellent application to foul sloughing ulcers, and also to certain obstinate and foul cutaneous eruptions. Ettmuller commends the application of them hot, to parts affected with the gout, and to bruises where there is much extravasation of blood.

Decoctions of the Burdock root, says Withering, are esteemed by judicious physicians as equal, if not superior, to *sarsaparilla*. Dr. Woodville says, "As a diuretic, we have known it succeed in two dropsical cases, where other powerful medicines had been ineffectually used: and as it neither excites nausea, nor increases irritation, it may occasionally deserve a trial, where other active remedies are improper."

XXXV.

PIMPINELLA SAXIFRAGA, L. BURNET-SAXIFRAGE.

Nat. Ord. UMBELLIFERE.*F.* BOUCAGE-SAXIFRAGE, BOUQUETIN. *G.* STEINBIBERNELLE,
ROSSBIBERNELLE.

Description.—Root perennial, long, cylindrical, fusiform, whitish, somewhat fibrous, and marked with annular striæ. Stem erect, round, striated, pubescent when the plant is in flower, afterwards smooth, jointed; a little branched towards the top, 12 to 18 inches high. Leaves variously shaped; those of the root pinnate, composed of from 5 to 7 rounded and more or less toothed leaflets, terminal one often 3-lobed; they soon wither, and are rarely found after fructification has commenced: cauline leaves bipinnate, with linear acute segments. Flowers in terminal umbels, flat, drooping before flowering, and consisting of several rays. Calyx teeth small, or none. Corolla white, composed of 5 inversely heart-shaped or somewhat ovate petals, inflexed at the point. Filaments white, spreading; filiform, and furnished with roundish anthers. Ovary ovate-oblong, striated, supporting 2 short styles terminated by simple, globose stigmas. Fruit contracted at the sides, ovate, striated, crowned with the swollen base of the reflexed styles; carpels marked with fine, slender, equal ridges, of which the lateral ones are marginal. Seeds gibbous, and nearly flat in front. (Plate IX, fig. 3: (a) floret magnified; (b) the fruit.)

Distribution.—Europe (Arctic), Siberia to Dahuria. Abundant in dry, gravelly, or chalky pastures in this country. Flowers July and August.

Etymology.—The generic name, Linneus informs us, is altered from *bipennula*, twice-pinnated. The great variety in the form of the leaves occasions a resemblance between them and those of many other plants; hence the specific name *Saxifraga*, and the common name Burnet-Saxifrage, from their similarity to those of the common Burnet (*Sanguisorba officinalis*).

There is another British species, the great Burnet-Saxifrage (*Pimpinella magna*), which grows in woods and shady places, and is like the foregoing in habit, but it is larger in all its parts, and the upper leaves are much broader and less divided. The Anise (*Pimpinella Anisum*), well known for its aromatic and carminative properties, is not indigenous to Britain, but is sometimes cultivated in gardens; its seeds are annually imported in great quantities from Spain and Malta, France, Germany, etc., as well as from Chili. A variety of the plant now before us is found in some parts of Prussia and Germany, it yields an essential oil of a fine blue colour, which it imparts to brandy. The juice of the root is likewise blue.

Properties and Uses.—The young leaves and shoots of this plant are said to be very palatable, and are eaten as salad. Small bunches of them tied together, and suspended in a cask of beer or ale, impart to it an agreeable aromatic flavour; and it is asserted that they tend to correct tart and spoiled wines. Almost all quadrupeds will feed on this plant, and it is reputed to be a wholesome fodder for cows, and to increase their milk. It has been used externally to remove freckles.

The root has a strong unpleasant smell, and a warm, pungent, and bitterish taste, which is considerably diminished by drying or on being long kept. Its virtues are partially extracted by water, and completely by rectified spirit. When large quantities of the root are distilled with water, a small quantity of essential oil, extremely acrid and fiery, may be obtained. Bergius considered the root resolvent, diaphoretic, stomachic, and diuretic. Boerhaave used it in dropsy and asthma. Hoffman recommended it as an emmenagogue. The German physicians have used it for removing tumours and obstructions of the glands, and in scorbutic and cutaneous disorders in general. The root has also been used as a masticatory in toothache, and to stimulate the tongue when that organ becomes paralytic. The powdered root was formerly united with arum, being considered an acrid stimulant.

XXXVI.

RUSCUS ACULEATUS, L. BUTCHER'S-BROOM.

Nat. Ord. LILLIACEÆ.*F. HOUX* FRELON, FRAGON PIQUANT. *G. STECHLICHER* MAUSDORN, MYRTENDORN.

Description.—Root perennial, thick, twining, and fibrous, like that of asparagus. Stems cylindrical, furrowed, smooth, flexible, dark green, 12 to 18 inches high. Leaves minute scales, bearing in the axils leaf-like branches, which are sharp-pointed, smooth, very rigid, and pungent, bearing the solitary flower on their upper surface. Flowers dioecious, small, white. Males have an inferior perianth of 6 leaves, filaments combined at the base, terminated by 3 spreading anthers, seated on the edge of a tubular coloured nectary; the females have a perianth and nectary, as in the male. Ovary superior oblong, supporting a short, thick style, terminated by an obtuse stigma. Fruit a large globose scarlet berry, 3-celled, each cell containing 1 or 2 seeds, large, shining, nearly spherical, and enclosed in a sweetish pulp. (Plate VIII, fig. 4: (a) the flower, situated on the leaf-like branch; (b) the flower, isolated; (c) the seed.)

Distribution.—Europe, from Belgium southwards, Northern Africa, Western Asia. In heathy places and woods, in many parts of the south of England. Naturalized in Scotland and Ireland. Flowers February to April.

Etymology.—It was anciently called *Bruscus*, derived, it is said, from *beus*, box, and *kelen*, holly, in Celtic, signifying Box-holly. Other names for it are Knee-holly and Prickly Pettigree.

Properties and Uses.—The tender shoots, just after they appear in spring, are sometimes gathered by the poor, and eaten like those of asparagus. The branches were formerly used by butchers to sweep their blocks, and in Italy, and some other countries, they use them for manufacturing brooms and bee-hives. The branches, with the ripe fruit on them, were

formerly stuck up in sand, with the stalks of peony and iris displaying their capsules of ripe seeds; the three together made a winter nosegay for rooms. In landscape gardening, the plant is valuable as an evergreen which will grow under the drip of other trees.

The root is at first sweetish to the taste, afterwards bitter; it was formerly reckoned one of the five greater aperient roots. The berries contain a sweetish pulp. The seeds have been used as a substitute for coffee, but they are said to render the liquid diuretic. The root of this plant has been long disused as a medicine, but it was once highly recommended as an aperient and diuretic in dropsies, urinary obstructions, and gravel. Dioscorides, Riverius, and Bauhin, all record cases cured by this remedy alone. Ettmuller strongly recommends it as a valuable remedy in scrofulous tumours and ulcers.

To form the decoction, an ounce of the dried root was boiled in a pint and half of water down to a pint, of which a wineglassful was taken three times a day, or more frequently, according to circumstances. For the infusion, half an ounce of the root, bruised, was added to a pint of boiling water, and drunk as tea. A distilled water has also been made from the leaves and berries.

XXXVII.

CALAMINTHA OFFICINALIS, Moench.

CALAMINT.

Nat. Ord. LABIATÆ.

F. CALAMENT. *G.* BERGMÜNZE.

Description.—Root perennial, spreading, fibrous. Stems upright, bushy, obtusely quadrangular, pubescent, about 2 feet high. Leaves ovate, somewhat cordate at the base, bordered with shallow serratures, rather obtuse, hairy. Flowers spring from the axils of the leaves or bracts, on branched stalks, lower flower-stalks shorter than the leaves. Calyx bilabiate,

tubular, marked with 13 nerves; upper lip 3-toothed, lower bifid, the teeth downy, slender, longer than those of the upper lip; mouth clothed with a few white hairs. Corolla light reddish purple with dark spots, twice as long as the calyx, bilabiate; upper lip slightly concave, with reflexed edges and emarginate; lower lip trifid, the middle lobe emarginate. Stamens didynamous, ascending, shorter than the upper lip, with filiform incurved filaments, tipped with free 2-lobed anthers. Ovary 4-cleft, with a filiform style, terminated by a stigma divided into 2 acute lobes. The fruit consists of 4 grains enclosed in the dry persistent calyx. (Plate IX., fig. 4: (a) the calyx; (b) the corolla seen in front.)

Distribution.—Europe, from Belgium southwards, Northern Africa, Western Asia. Introduced in North America. Not unfrequent in this country by waysides, borders of fields, and hedge-banks. Flowers July and August.

Etymology.—The name is derived from *καλος*, good, and *μίνθα*, mint, an appellation bestowed on a plant whose scent drove away serpents.

The Lesser Calamint (*Calamintha Nepeta*), which is by some considered a variety or sub-species of *C. officinalis*, is said to be equal, if not superior to it, in virtues. It is rather smaller in all its parts, especially the leaves, which are more strongly serrated; the white hairs in the mouth of the calyx are more dense and prominent; the corolla is variegated with pale purple and white, and is downy externally; and the odour of the plant is stronger, and resembles that of pennyroyal.

Properties and Uses.—The common Calamint has a strong and aromatic smell, and an aromatic pungent taste. Water extracts by infusion nearly all its virtues; and by distillation with that fluid, a considerable quantity of essential oil is obtained, of a very pungent taste, and smelling strongly of the herb. Rectified spirit extracts its virtues better than water, and is rendered of a deep green colour.

This plant is reputed excitant and nervine, but as it enjoys these properties in common with many other of the *Labiata*, without any remarkable pre-eminence, it has fallen into disuse, except as a rustic medicine. Nevertheless, Ettmüller

considers it as the best of the mints, and peculiarly qualified to correct acidities and flatulence, and to prevent the diseases arising from this source. He also extols its emmenagogue and diuretic effects. Geoffroy speaks of it in similar terms of praise, and recommends it to be employed externally, macerated either in water or wine, in form of a fomentation, to assuage severe pains and to promote suppressed menstruation.

The peasantry of some countries apply the herb, bruised, to parts affected with rheumatic pains : this application not only acts as a rubefacient, but raises blisters, which are opened to let the serous matter escape.

XXXVIII.

CARUM CARUI, L. CARAWAY.

Nat. Ord. UMBELLIFERÆ.

F. CARVI, CUMIN DES PRÉS. *G. MATTENKÜMMEL*, GEMEINER KÜMMEL.

Description.—Root biennial, fusiform, whitish, about the thickness of the thumb, furnished with numerous fibres. Stems erect, firm, cylindrical, striated, smooth, branched, about 2 feet high. Leaves long, sheathing at the base, doubly pinnate, deep green; radical ones stalked, with numerous acute segments; those of the stem opposite, very unequal, and divided into fine linear acute segments. Flowers in dense terminal umbels of about 10 rays, with a general involucre of a few setaceous leaves, and no partial one. Calyx a mere obsolete margin. Petals 5, nearly white, inversely heart-shaped, slightly emarginate at the end. Stamens 5, with capilliform spreading filaments, as long as the petals, tipped with globose 2-lobed anthers. Ovary inferior, ovate, abrupt, surmounted by 2 short, afterwards elongated, filiform, spreading styles, tumid at the base, terminated by obtuse stigmas. Fruit oblong, compressed at the side, and composed of 2 carpels, traversed by 5 filiform equal ridges, having interstices with single vittæ, and their inner faces plane. Seed somewhat convex, narrow at both



Cinqufoil



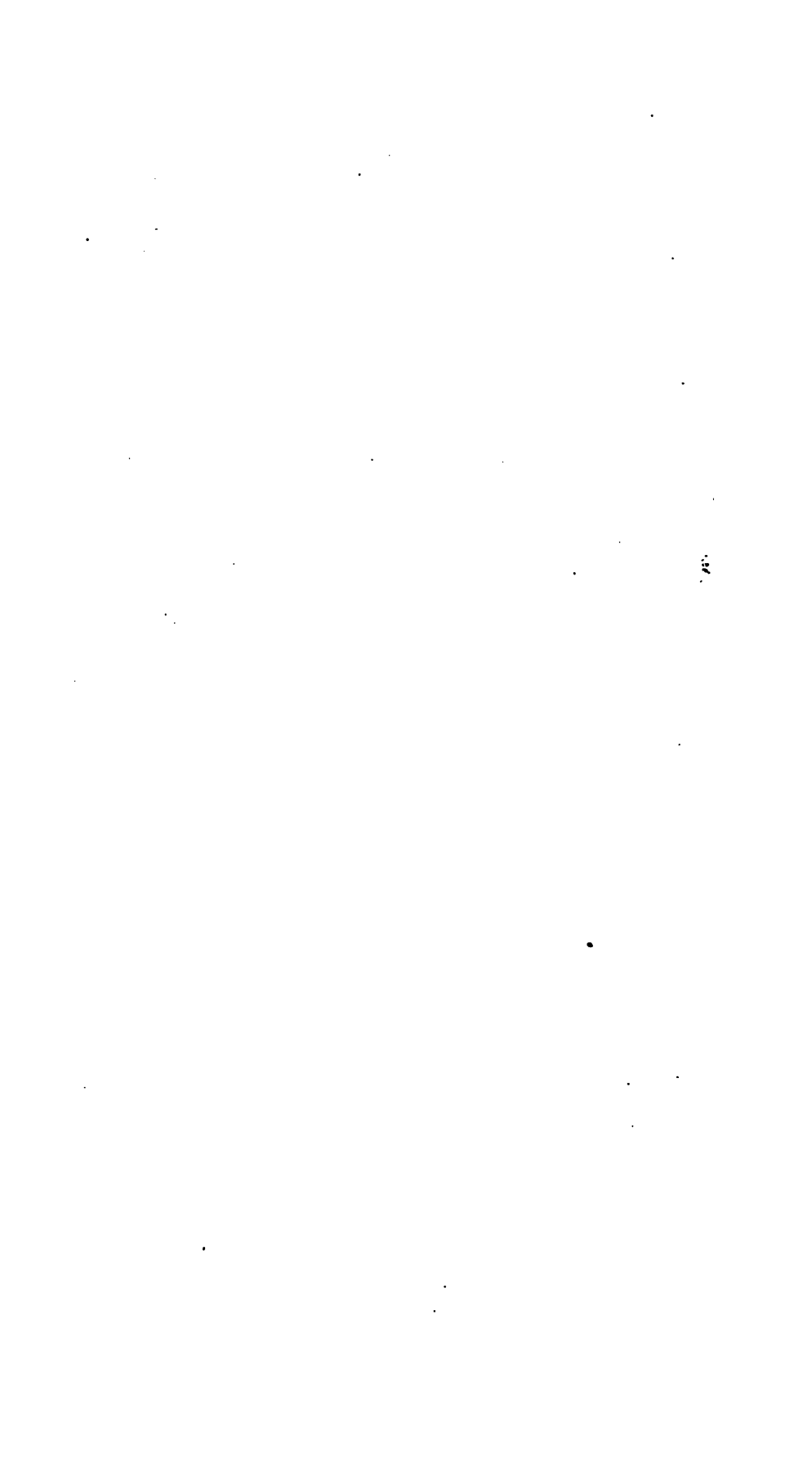
Buckthorn



Comfrey



Caraway



ends, plane in front. (Plate X., fig. 4: (a) half of a radical leaf; (b) an entire floret of the natural size; (c) the fruit, showing the 2 carpels separating at maturity.)

Distribution.—Europe (Arctic), Siberia, Western Asia to the Himalaya. Waste places in many parts of England, but is supposed not to be truly indigenous. Flowers June and July.

Etymology.—The ancient naturalists, and Greek and Roman physicians, frequently mention this plant under the name of *καρος*, *καρεον*, *careum*; and it was so named, according to Pliny, because it was peculiarly abundant in Caria, a province of Asia Minor.

The Caraway is mentioned by Shakspeare, in *Henry IV.*, as follows:—"Nay, and you shall see mine orchard, where, in an harbour, we will eat a last year's pippin of my own grafting, with a dish of carraways, and so come forth;—come, cousin Silence;—and then to bed."

Properties and Uses.—The Caraway, from being cultivated in our gardens, loses a great part of its natural acidity: the root becomes more voluminous and succulent; the fruit larger, more oily, and acquires a more aromatic and agreeable taste and odour. The young roots are said to be more delicious than parsnips, and they are spoken of by Dioscorides as a nutritious and agreeable food. It has been suggested, that these roots, ground, mixed with milk, and made into bread, formed the substance spoken of by Julius Cæsar, under the name of *chara*, as eaten by the soldiers of Valerius. The warlike Germans of old, made of the root a vinous drink, or preserved it in honey or must; and it is eaten occasionally in the present day, either raw, or boiled as a pot-herb; the leaves are also used for the last-mentioned purpose. Bechstein asserts, that Caraway, if carefully transplanted into richer soil, produces roots not inferior to those of the scorzonera, and likewise affords a very agreeable pickle. Goats, swine, and sheep are fond of the herbage of this plant, but cows and horses refuse it.

Many of the Tartars and Circassians prepare from the fruits, commercially known as seeds, a kind of farina, which

they make into cakes, and which they consider a great dainty. The Swedish and German peasants flavour their cheese, soups, ragouts, and household bread with them: they are also used in the distillation of spirituous liquors; and, incrustrated with sugar, they form the well-known comfits of the confectioners.

The plant is cultivated in this country exclusively in Kent and Essex. It was formerly sown mixed with coriander and teazle seed, but now with the former only. It yields its crop in the second year after sowing, and is harvested in July by cutting down the plants and thrashing them. The produce varies much, but from 4 to 8 cwt. per acre is a fair average. Caraways are also cultivated and imported in large quantities from Norway, Russia, Germany, etc.

Caraways contain a volatile oil; that distilled in England from home-grown fruits is preferred in this country. On the Continent that extracted from the Caraways of Halle and Holland is considered to be of finer quality than the oil obtained from those of Southern Germany. The leaves of the plant also afford an oil similar to that of the fruits, but in much smaller quantity.

The medical properties of Caraways are carminative, cordial, and stomachic. They have been recommended in flatulencies, colic, dyspepsia, and other symptoms attending hysterical and hypochondriacal disorders.

In pharmacy they enter into many infusions and decoctions, wherein warmth may be desirable. Geoffroy recommends a scruple of the seeds in powder, with two drachms of sugar in a glass of good wine, in cases of flatulent colic. Ettmuller commends them in similar disorders, and as efficacious in promoting the secretion of milk. Linneus considers them as a remedy not to be despised in tertian agues.

A decoction of the root has been used in clysters, combined with astringents or purgatives. The essential oil has been recommended in heart-burn, sickness, etc. Both the seeds and the oil are employed externally in windy colics, and in some deep-seated pains, as earache and toothache. A homely remedy is used by the country people of some districts in the first-mentioned disease, which they find extremely efficacious.

They pound a hot loaf, fresh from the oven, with a good handful or two of the seeds; and wetting the whole with brandy, or with some other spirit, apply it to the part affected. An ounce of the seeds, infused in a pint of water, forms a carminative potion, which has been recommended for infants instead of the oil of Caraway usually given by nurses.

At the present time the essential oil, or distilled water, is used in medicine as an aromatic stimulant, or as a flavouring ingredient. The largest quantity, however, consumed in Europe is as a spice in bread, cakes, cheese, pastry, confectionery, sauces, etc. The oil is also used in flavouring alcoholic liquors, and in perfumery.

XXXIX.

DAUCUS CAROTA, L. WILD CARROT.

*Nat. Ord. UMBELLIFERÆ.**F. CAROTTE. G. MÖHRE, VOGELNEST.*

Description.—Root perennial, fusiform, slender, firm, somewhat woody, yellowish, penetrating deep into the soil, with occasional small rootlets. Stem erect, cylindrical, branched, somewhat furrowed, hairy, 2 to 3 feet high. Lower leaves large, bipinnate; those of the stem gradually decrease in size, and become tripinnate, with linear-lanceolate acute segments; they are all petiolate, deep green, clothed with short hairs, footstalks nerved beneath. Umbels large, terminal, composed of several rays, and form a plane surface at the top when in flower; as they approach maturity they contract and become concave. Flowers small, generally white, except the solitary abortive one in the centre of the umbel, which is purplish. General involucre, composed of many pinnatifid leaves; partial one more simple, undivided or 3-cleft. Calyx with 5 small obscure teeth. Petals 5, inversely heart-shaped, the point inflexed; outer often radiant, and deeply bifid. Filaments spreading, filiform, longer than the corolla, with oblong anthers.

Ovary inferior, ovate, imperfect in the outermost and central flowers; styles filiform, spreading, dilated at the base, terminated by obtuse stigmas. Fruit oblong, compressed at the back; each carpel marked with 5 filiform bristly ridges, of which the 2 lateral are on the inner face, and 4 secondary prominent ridges, with 1 row of prickles; and interstices under the secondary ridges, with single vittæ. (Plate XI, fig. 1: (a) leaf of involucre; (b) floret, somewhat magnified; (c) flower, natural size; (d) the ripe fruit, magnified.)

Distribution.—Europe, North Africa, North Asia, West Asia to India. Introduced in North America. In fields, and on the sea-shores of this country. Flowers June to August.

Etymology and History.—This plant, the *δαυκος* of the ancient Greek authors, is supposed to have derived its name from *δauw*, to make hot, on account of its stimulant effects. It is spoken of by Pliny, who states, that the most esteemed kinds were produced in Candia and Achaia. But the Cretan carrot—mentioned by Celsus as an ingredient in the famous Mithridate, at one time a celebrated antidote against poison, discovered by the learned Mithridates, king of Pontus, which was said to have been so efficacious that he was unable to succeed even in poisoning himself—seems to have been the *Athamanta cretensis*. The English word Carrot, and the Latin Carota, are derived, according to Théis, from the Celtic *car*, red. The plant often goes by the name of Bird's-nest, in allusion to the umbels, which contract when the fruit begins to ripen, and form a dense concave body, the shape of which has suggested the above name in English, and the Vogelnest of the Dutch and Germans.

The garden Carrot is generally supposed to be a variety of the wild species, improved by culture: and of this there can be little doubt, when the change effected in other esculent vegetables is considered; although Miller states, that those who have attempted to cultivate the wild sort are convinced of their being distinct; and others assert that the plant was introduced from Belgium, in the reign of Elizabeth.

Parkinson informs us, that in his time Carrot leaves were thought so ornamental, that ladies wore them instead of feathers.

Properties and Uses.—As a culinary article, the Carrot is well known; it also affords a wholesome and nutritious food for cattle. A good wine may be made from the roots, and an ardent spirit. M. Brieger obtained from ten pounds of the root, one quart of what is called "first runnings," and half a pint of very strong spirit. It has been found that an acre of Carrots produce considerably more sugar than five quarters of barley, the average product of an acre. A useful article of diet for voyagers is obtained from the root dried, and reduced to powder, and a tolerable kind of bread has been made from it. It is occasionally roasted and mixed with coffee, in various proportions. The seeds fermented in malt liquor give it a flavour resembling that of lemon peel.

M. Braconnot discovered a substance which he designated *pectic acid*, and believed to be present in all vegetables, but he extracted it chiefly from the Carrot. In order to obtain pectic acid, the Carrots are made into a pulp, the juice is expressed, and the solid part well washed with distilled water. It is then boiled for about ten minutes, with a very dilute solution of pure potash, or bicarbonate of potash, in the proportion of 5 parts to 100 of the washed pulp, and muriate of lime is added to the filtered liquor. The precipitate, consisting of pectic acid and lime, is well washed, and the lime removed by water acidulated with muriatic acid. The liquid is then thrown upon a linen cloth, and the pectic acid is obtained, and may be washed with the greatest facility with pure water.

Pectic acid thus obtained is in the form of a jelly. It is insoluble in cold water and acids, and nearly so in boiling water. On the addition of a few drops of ammonia, it liquefies readily. It is remarkable for the extreme facility with which it gelatinizes large quantities of sugared water. One part of this acid dissolved in hot water, and added to 300 parts of sugared water, instantly forms a mass of trembling jelly; on this account it may be found useful in the preparation of various jellies.

The fruits of the wild Carrot are thought to be superior to those of the cultivated kind, and are recommended for medicinal purposes. By distillation, or evaporation, water elevates

the whole of their smell, and aromatic taste ; if large quantities are distilled, a yellowish essential oil is obtained, having a pungent taste, and a powerful odour. Rectified spirits take up all their virtues by digestion. The expressed juice, or a decoction of this root, as well as the seeds, were considered by the older physicians as possessing specific qualities against gravel and stone ; and as endowed with diuretic, deobstruent, and emmenagogue properties. The juice, or a decoction of the root has also been recommended for sore mouths, and for thrush.

Marggraf directs the recent roots to be cut, well washed, and beaten into a pulp ; the juice of which is to be expressed through a sieve, and inspissated to the consistence of honey, in which state it may be used at table instead of sugar, and is well adapted for infantile consumptive coughs, and for worms.

The pulp of the root, when time has been allowed for the establishment of the vinous fermentation, was considered an excellent cataplasm.

XL.

NEPETA CATARIA, L. CATMINT.

Nat. Ord. LABIATÆ.

F. CATAIRE, HERB-AU-CHAT.

G. KATZENKRAUT, KATZENMÜNZE.

Description.—Root perennial, long, woody, with numerous slender blackish fibrils. Stems numerous, branched, quadrangular, pubescent, 2 to 3 feet high. Leaves opposite, cordate, petiolate, green above, whitish beneath, with large acute serratures. Flowers in spiked, somewhat pedunculate whorls. Calyx monophyllous, tubular, many-ribbed, 5-toothed. Corolla large, white, or purplish, with deep rose-coloured spots ; tube long, cylindrical ; upper lip emarginate, lower with 3 lobes, central one large, rounded, concave and notched, lateral ones reflexed. Stamens didynamous, approximating, shorter than the upper lip of the corolla, with reddish anthers. Ovary

superior, 4-lobed, supporting a filiform curved style, terminated by a bifid stigma. (Plate XI, fig. 2: (a) entire flower, magnified; (b) corolla, stamens, and style, viewed in front; (c) the pistil; (d) the calyx, opened to show the achenia.)

Distribution.—Europe, Siberia, Western Asia to the Himalaya. Introduced in North America. The plant is found in hedge-banks and waste places in some parts of England and Ireland, but very local in Scotland. Flowers July and September.

Etymology.—The generic name has been derived either from *Nepi*, a town in Italy, or from *Nepa*, a scorpion, for whose bite the plant was a reputed antidote. It is called Catmint, because cats are extremely fond of it, especially when it is withered, when they will roll themselves on it, tear it in pieces, and chew it as long as a leaf remains. Ray mentions that he transplanted the common Catmint from the fields into his garden; but the cats soon destroyed it: those plants, however, which came up from seed uniformly escaped, and thus he found the old proverb verified:—

“If you set it
The cats will eat it;
If you sow it
The cats will not know it.”

It is eaten by sheep, but refused by cows, horses, goats, and swine.

Properties and Uses.—The Catmint has a bitter taste and a strong smell, rather sweeter than that of mint, and resembling pennyroyal. The active principle is extracted both by water and rectified spirit; most completely by the latter. By distillation with water it yields a yellowish essential oil, which diffuses a strong and penetrating odour. Rectified spirit likewise elevates a portion of the odour and aromatic quality, but the greater part is left behind in the extract, which proves more grateful than the leaves in substance.

It might be expected that a plant which exercises so powerful an influence on the animal economy could not be destitute of medicinal properties. Hermann, Boecler, and Gilibert speaks of its efficacy in chlorosis, hysteria, and

amenorrhæa, and it is chiefly in uterine and dyspeptic disorders that its virtues have been celebrated. It has been administered in aqueous or vinous infusions, fomentations, injections, lavements, and baths. A drink formed by boiling the plant in hydromel has been recommended for allaying obstinate coughs.

XLI.

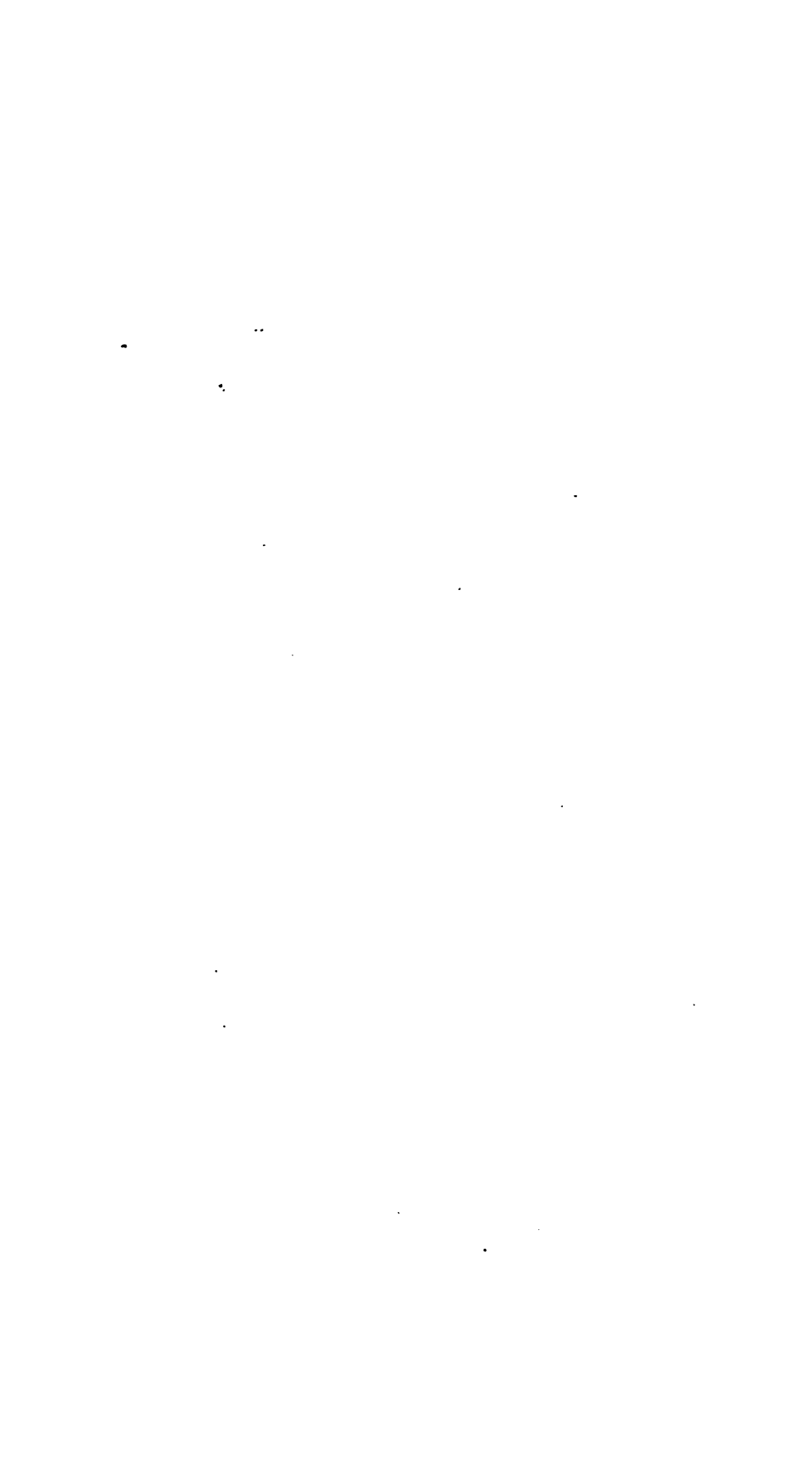
CHELIDONIUM MAJUS, L. GREAT CELANDINE.

Nat. Ord. PAPAVERACEÆ.

F. CHELIDOINE, ECLAIRE. *G.* SCHELKRAUT.

Description.—Root perennial, cylindrical, tapering, fibrous, reddish brown. Stem upright, branched, slightly hairy, brittle, from 1 to 2 feet high. Leaves alternate, large, pinnated, with from 3 to 5 decurrent leaflets, which are broadly ovate, lobed, and crenated, terminal one largest, and generally 3-lobed, bright green above, glaucous beneath;—their footstalks hairy. Flowers on long hairy pedicels, and disposed in umbels on the summit of the axillary stalks. Calyx inferior, consisting of 2 ovate, concave, entire, caducous sepals. Corolla of 4 roundish, obtuse, spreading petals, placed in a cruciform manner, bright yellow. Stamens numerous, shorter than the corolla, with yellow compressed filaments, and oblong, erect, 2-lobed anthers. Ovary cylindrical, somewhat curved, terminated by a small, sessile, obtuse, bifid stigma. Fruit a long linear pod, rather turgid, of 1 cell and 2 valves, containing numerous globose, dark shining seeds, arranged in 2 rows along a linear receptacle at each side of the pod. (Plate XII., fig. 1: (*a*) the calyx, stamens, and pistil; (*b*) the pistil; (*c*) the fruit or silique as it opens at maturity; (*d*) the crested seed.)

Distribution.—Europe (Arctic), Siberia, Western Asia to Persia. Introduced in North America. It occurs in waste places and hedgerows in the south of England; probably only naturalized. Flowers May to August.





Common Colandine



Centaury



Cummin



Cleavers or Goosegrass

Etymology.—The generic name is derived from χελιδων, a swallow, either because it flowers about the time of the arrival of those birds, or from an ancient tradition, that they used it to open the eyes of their young, or to restore their sight.

“The swallows use celandine, the linnet euphrasia.”

MORE.

Celandine is evidently a corruption of Chelidonium.

Properties and Uses.—The whole plant in its recent state, if slightly wounded, exudes an orange-coloured juice of a disagreeable odour, which has been compared to that of stale eggs. It has a bitter taste, accompanied with an acidity, which is diminished by the process of drying, while the bitterness is augmented. These properties reside in the greatest degree in the root. Both rectified spirit and water extract its virtues; the juice of the stem and leaves gives to the former a green colour, and that of the root a brownish yellow. The pungency of the Celandine is not of a volatile nature, since it does not rise in distillation with water, but it is almost dissipated by drying the plant.

The bright colour of the juice has suggested some experiments with it in dyeing, but no permanent colour could be obtained. Rössig, however, a German writer, asserts that by fermentation a good blue colour was procured, similar to that of the *Isatis tinctoria*, or Woad.

No animal has been known to eat this plant.

The juice is an acrid poison, and is capable of producing very deleterious effects, if improperly used. Orfila found that, introduced into the stomach of animals, it produced vomiting, loss of sight and hearing, incapacity to stand, and death: the stomach was found inflamed, and the lungs livid and distended with blood. When applied to wounds it produced the same effects, except that there was no vomiting, and the stomach was not inflamed. Dioscorides and Galen employed it, infused in white wine, for the cure of jaundice; the former, with the addition of anise. Forestus gave it infused in beer, and Chomel recommends the leaves to be macerated in whey, to which a little cream of tartar is added. Tragus greatly extols its virtues in contagious and malignant diseases: he

asserts that a decoction of the root in vinegar, with the addition of theriaca, has been known to cure those attacked by the plague, if they kept themselves in bed and took care not to check the perspiration. It was esteemed a specific in the epidemic called the "sweating sickness" in this country. It has also been used as a topical application in some obstinate cutaneous diseases, in ophthalmic cases, in gouty and calculous affections, and the expressed juice for wounds and ulcers.

The use of the plant externally is well known to country people as efficacious in removing warts. The method of applying it is simply to break the stalk, and touch the parts affected with the yellow juice which exudes.

The great celebrity which the Celandine once enjoyed as a remedy for jaundice probably originated in the doctrine of signatures.

XLII.

ERYTHRÆA CENTAURIUM, Pers. CENTAURY.

Nat. Ord. GENTIANEE.

F. PETITE CENTAURÉE. *G.* TAUSENDGULDENKRAUT.

Description.—Root annual, woody, branching, fibrous, yellow. Stem erect, slender, angular, leafy, smooth, sometimes branched, 8 to 12 inches high. Root leaves tufted, spreading, 3-nerved, broader than those of the stem, which are in distant pairs, obovate, sessile, smooth, bright green. Flowers in a fasciculate, corymb-like panicle, at the top of the stem. Calyx about half the length of the tube of the corolla, smooth, striated, and 5-cleft. Corolla rose-coloured, funnel-shaped, withering, closing at night and at the approach of rain; limb short, divided into 5 ovate segments. Stamens 5, shorter than the tube, with thread-shaped filaments, and oblong yellow anthers, which become spiral after the pollen is discharged. Ovary oblong, compressed, surmounted by a straight cylindrical style, terminated by a roundish bifid stigma. (Plate

XII., fig. 2: (a) the corolla opened to show the stamens; (b) the pistil; (c) anther.)

Distribution.—Europe, from Gothland southwards, Northern Africa. Introduced into North America. Frequent in dry pastures and sandy coasts in this country. Flowers June to September.

Etymology.—The generic name is derived from *ερυθρος*, red, in allusion to the colour of the flowers. The term Centaurium has been applied to this species because its virtues were supposed to have been discovered by the centaur Chiron, one of the earliest cultivators of botany and medicine.

Properties and Uses.—The common Centaury is nearly inodorous, but every part of it is impregnated with an intense bitterness. Both water and alcohol extract the whole of its active principle, leaving the insoluble part perfectly insipid. It appears to contain a bitter resin and mucus. The aqueous decoction yields, by evaporation, a bitter extract.

This plant has been held in repute from the days of Galen. The tops are the parts chiefly recommended, and these should be gathered while in full flower. It is considered tonic and antiseptic. As a stomachic in dyspeptic complaints, it has proved very beneficial by increasing and strengthening the powers of the stomach and digestive organs, and removing obstructions of the liver and mesenteric glands. In these respects it has been considered not inferior to the yellow gentian, while in intermittents and other febrile disorders it has supplied the place of Peruvian bark. Dioscorides and Galen, who extol the virtues of the plant, remark that it sometimes proves cathartic; but it is probable that this effect is only produced in peculiar cases, or by a very large dose. Its efficacy in gout has also been greatly praised, and it was a principal ingredient in the celebrated Portland powder.

The tincture of Centaury is a reputed stomachic and anthelmintic, and has been used in intermittent fevers.

XLIII.

ANTHEMIS NOBILIS, L. CHAMOMILE.

Nat. Ord. COMPOSITÆ.*F.* CAMOMILLE ROMAINE. *G.* ROMISCHE KAMILLEN.

Description.—Root perennial, fibrous, spreading. Stems procumbent, from 6 to 12 inches long, herbaceous, hairy, much branched and leafy, pale green. Leaves alternate, sessile, bipinnate, the pinnæ linear, somewhat hairy, pale green, and generally divided into 3 acute segments. Flower-heads on long, striated, hairy peduncles terminating the branches; disk yellow, at length conical, the ray white. Involucre hemispherical, composed of several small imbricated nearly equal scales, with membranous margins. Florets of the disk numerous, hermaphrodite, tubular, and 5-toothed; those of the ray generally about 18 in number, long, spreading, ligulate, and 3-toothed at the extremity, tube enclosing a pistil only; receptacle convex, honey-combed, beset with chaffy scales. The 5 filaments are capillary, very short, their anthers united into a cylindrical tube. Ovary obovate, terminated by a filiform style, and a bifid spreading stigma. Fruit obovate, crowned with a membranous border or pappus. Seed solitary and erect. (Plate XIV., fig. 1: (a) involucre cut through, showing the receptacle, on the summit of which is left a floret accompanied by its scale; (b) floret of the disk; (c) floret of the ray.)

Distribution.—France, Spain, Germany, Austria, and Northern Africa. It flourishes in dry, gravelly pastures, and waste places throughout the south of England, and is abundant on the commons in the neighbourhood of London. Flowers July to September.

Etymology.—The generic name is derived from *ανθος*, a flower, on account of the profusion of its blossoms. The common English name of the plant is a corruption of Chamæmelum, formed from *χαμαι*, on the ground, and *μυλον*, an apple, because the plant is described by Pliny, as smelling like apples, or quinces. The Spaniards call it *Manzanilla*, or little apple.

Cultivation.—The Chamomile is cultivated largely at Mitcham, in Surrey, the land yielding about 4 cwt. of flowers per acre. They are carefully gathered before being fully blown, and dried by artificial heat. They realize a price varying from £3 or £4 to £9 per cwt., the English-grown flowers being the most valuable. The plant is also grown on a larger scale in Saxony, as well as in Belgium and France. Single and double flowers are both known in commerce, but the double are by far the most common. Chamomile flowers are esteemed in the market in proportion to their size, whether they are truly double, and of a good white colour,—the latter quality depending to some extent on the state of the weather during the period of flowering, a fine dry summer producing a much finer quality than a damp or wet season.

Properties and Uses.—The whole plant is odorous, but the flowers exhale a peculiar aromatic smell, which is very powerful and not unpleasant. They are bitter and aromatic to the taste, with some degree of warmth. Both water and alcohol take up the whole of their active qualities. By distillation with water they yield a small quantity of essential oil of a bluish colour. By inspissating a decoction of the plant its peculiar flavour is dissipated, but the bitterness remains. Rectified spirit extracts more of the flavour than water. Chamomile flowers are tonic, antispasmodic, and slightly anodyne. They have been found useful for the cure of intermittent fevers. Many of the old physicians strongly recommend them for this purpose.

Chamomile, especially when combined with ginger or other aromatics, and the alkalies, is an excellent stomachic in indigestion, flatulent colic, gout, chlorosis, and periodical headaches. A strong infusion of Chamomile is a very common and efficient emetic, and one which may be given in the most delicate habits, as it does not leave the stomach in a debilitated state, but, on the contrary, invigorates that organ.

For outward application fomentations of Chamomile have been used in colic, local and intestinal inflammations, etc. In the form of a cataplasm they have been recommended in tumours, and in all kinds of contusions. Small bags filled

with the flowers, boiled in wine or water, were applied hot.

The chief use of Chamomile at the present time is as a bitter stomachic and tonic, given in the form of infusion or extract.

There are several other species of Chamomile, but the only one of any consequence is the *Anthemis Cotula*, stinking Chamomile or May-weed, which is distinguished by its very smooth bipinnatifid leaves with awl-shaped segments, its conical receptacle with bristly scales, and fruit without any margin or pappus. It grows in corn-fields, has a fetid smell, and often blisters the hands of those who gather it. It is still used by the peasantry in the United States as a sudorific in chronic rheumatism, and was formerly recommended by Tragus and others, in the form of decoction, as a remedy in hysteria and worm cases, and externally in fomentations. The wild Chamomile (*Matricaria Chamomilla*) is generically distinguished by its receptacle being destitute of scales and nearly cylindrical; the rays of the florets are very obtuse and notched at the extremity, and the scales of the involucre obtuse. It grows in corn-fields and waste places, flowering in August. This has a bitter taste and faint aromatic smell, and possesses the virtues of the true Chamomile in an inferior degree.

XLIV.

ÆSCULUS HIPPOCASTANUM, L. HORSE-CHESTNUT.

Nat. Ord. SAPINDACEÆ.

F. MARRONIER D'INDE. G. WILDE KASTANIE.

Description.—Tree 40 or 50 feet high, sending off numerous spreading branches, covered with a rough brown bark. The wood is rapidly formed, is white and soft, but soon decays. Leaves digitate, composed of seven large, obovate, acuminate, serrate, light green leaflets, proceeding from the extremity of a common petiole. Flowers in terminal, some-

what paniced, racemes, on rather short peduncles. Calyx tubular, monophyllous, divided at the margin into 5 obtuse teeth. Corolla consists of 5 unequal spreading petals, ovate, somewhat undulated at the margin, white, and inserted by narrow claws into the calyx, with a rose-coloured or yellowish mark at the base. Stamens 7, with awl-shaped, curved, tapering filaments, about the length of the petals, and oblong, somewhat incumbent anthers. Ovary roundish, 3-cornered, and 3-celled; style simple, short, filiform, acute, terminated by a pointed stigma. Fruit a coriaceous, 3-celled, 3-valved capsule, beset externally with short spines, and containing usually 2 large, roundish, shining seeds, destitute of albumen; embryo curved, inverted, with thick, very fleshy, cohering cotyledons; plumule very large, 2-leaved; radicle, conical, curved, and turned towards the hilum. (Plate XI, fig. 4: (a) the calyx; (b) a single stamen; (c) the pistil.)

Distribution.—This well-known tree migrated originally from the north of Asia, by Constantinople, about the middle of the sixteenth century: it is not known in what year, but Matthioli is the first botanist who mentions it. In the time of Clusius, it was so rare that when he left Vienna, to which city much of the fruit was brought from Constantinople in 1588, he only saw one tree, which was not more than twelve years old. That it was very little known here in 1630–40 may be gathered from Parkinson, who states in his *Paradisus*, that he cultivated it in his orchard as a fruit-tree, esteeming the nuts superior to the ordinary sort. It is now very common in this country, especially in parks and avenues, and affords a magnificent spectacle during the month of May, when its flowers are in full perfection.

Etymology.—The generic name is derived from *esca*, food, whence *æsculus*. *Hippocastanum* is compounded of *ἵππος*, a horse, and *κάστανον*, a chestnut, because horses are said to eat the fruit greedily, and by it to have been cured of coughs and pulmonary disorders.

Properties and Uses.—The timber of the Horse-chestnut is white and soft, but not durable; it is consequently of very little use. The various parts of the fruit have been

applied to several useful purposes: the nuts, for instance, as food for horses, deer, and poultry: the milk of cows that feed on them is said to be very rich. Before giving them to sheep, it has been thought advisable to macerate them in caustic alkali, or lime water, in order to take off the bitterness, afterwards to wash them in water, and then boil them to a paste. If they were allowed to germinate, and then divested of their bitter and acrimonious qualities, they might probably afford a kind of bread; spirit might likewise be obtained from them by distillation. They yield a large quantity of starch, and when boiled and steeped in water, a saponaceous substance is procured.

Sprogel, an ingenious German, has prepared a kind of paste or size from the fruit, which is preferable to that made of wheaten-flour. The nuts are first cleared of the hard shell, as well as the inner skin; then cut into 3 or 4 parts, dried hard in an oven, and afterwards reduced to fine flour; rain water, with a little alum dissolved in it, is then poured upon them, and the whole is worked into a proper consistence. No moths or vermin will breed in the articles cemented with this substance. The prickly husks have been used for tanning leather, and the leaves and bark for dyeing brown. The latter has an aromatic odour and an astringent, somewhat bitter taste. Its virtues are extracted both by water and alcohol.

It has been employed as an astringent, and was first recommended in the cure of intermittents by Zannichelli. Its febrifugal qualities have since been asserted by many others.

Notwithstanding the value set upon this bark by the old physicians, it is now no longer used; and the tree may be looked upon as purely ornamental rather than useful.

XLV.

ANTHRISCUS CEREFOLIUM, Hoffm.

GARDEN CHERVIL, OR BEAKED PARSLEY.

Nat. Ord. UMBELLIFERÆ.*F.* CERFEUIL. *G.* KERBEL.

Description.—Root fusiform, about the thickness of the little finger, reddish externally, white within, somewhat branched, very fibrous towards the extremity. Stem cylindrical, glabrous, striated, fistulous, and branched, about 2 feet high. Leaves alternate, somewhat amplexicaul, twice or thrice winged; leaflets pinnatifid, ovate-cordate, with deep incised segments, delicate pale green. Flowers in umbels placed laterally at the summit of the branches, composed of 3 or 4 pubescent rays; umbellules small and furnished with an involucre of about 3 linear leaves. Calyx an indistinct rim. Petals 5, white, unequal, cordate, spreading, and slightly inflexed at the point. Filaments 5, thread-shaped, spreading, and tipped with roundish anthers. Ovary inferior, oblong, with 2 short awl-shaped styles terminated by simple stigmas. Fruit large, smooth, shining, linear, tapering upwards, with a short angular beak marked with 5 ridges, and crowned by the flattened disk to which the styles adhere; carpels destitute of ridges. Seeds oblong, smooth, deeply furrowed in front, and nearly black when ripe. (Plate XI., fig. 3: (a) floret, magnified; (b) the fruit; (c) the carpels as they separate at maturity.)

Distribution.—Europe generally, except Spain and Greece; Western Siberia. In this country, found occasionally in hedges and about gardens, from which it has escaped, being frequently cultivated as an esculent vegetable. Annual. Flowers June and July.

Etymology.—The generic name is a title given by Pliny to a plant nearly allied to this, but the derivation is unknown. The garden Chervil is sometimes included in the genus *Chærophyllum*. The common beaked Parsley, or rough Chervil (*Anthriscus vulgaris*), bears a near resemblance to the species

now before us, and was gathered in mistake by the Dutch soldiers who were in England in 1745, when some of them were poisoned by it. The different structure of the fruit is a sufficient distinctive mark, when that can be found, being ovate, conical, and covered with hooked bristles. If the fruit is not perfected, the uniform petals, the many-rayed umbels, and the stems swollen beneath the joints, are distinguishing characters.

Properties and Uses.—This plant was formerly much used as a salad and pot-herb. It is a pleasant addition to soups, etc., and is reckoned very nutritive and wholesome; a very slight boiling is required, otherwise it loses its taste and virtues. Chervil has an agreeable aromatic smell, and a moderately penetrating taste, resembling that of anise. Its aromatic properties are very fugitive, being speedily dissipated by boiling and desiccation; but the greater part of its virtues are extracted by infusion either in alcohol or water.

Chervil is slightly aromatic, gently aperient, diuretic, and lactiferous. It has been used by the old physicians in obstructions of the mesenteric glands, for removing obstructions of the viscera, for preventing the formation of calculi in the kidneys and bladder, for the cure of cutaneous diseases, dropsy, asthma, consumption and slow fevers, the juice being given alone or mixed either with goats milk or gruel. The external application of Chervil, either in poultices or the juice itself, has been found beneficial for many complaints.

XLVI.

POTENTILLA REPTANS, L.

CREEPING CINQUEFOIL.

Nat. Ord. ROSACEÆ.*F.* QUINTE-FEUILLE. *G.* FÜNFINGERKRAUT.

Description.—Root perennial, long, tapering, cylindrical, with few fibres, externally of a yellowish or reddish brown. Stems numerous, slender, long, prostrate, rooting at the joints. Leaves opposite, quinate, sometimes of 7 leaflets, unequal, obovate, serrated, hairy, sessile, on long axillary petioles, at the base of which the stipules are inserted. Flowers single, on long slender peduncles. Calyx divided into 10 segments, 5 of which are alternately smaller and exterior to the rest, and frequently recurved. Corolla of 5 obcordate yellow petals inserted into the calyx by short claws. Stamens about 20 in number, with short tapering filaments, tipped with roundish 2-celled anthers. Ovaries numerous, superior, globose, forming a conical head; each terminated by a filiform ascending style, surmounted by a blunt downy stigma. Fruit consists of numerous minute nuts or grains, on a small, elevated, dry receptacle. (Plate X., fig. 1: (a) the calyx; (b) a petal detached; (c) a single stamen.)

Distribution.—Europe, Northern and Western Asia to the Himalayas, Canaries and Azores. Common in meadows and pastures, and by road-sides in this country. Flowers June to end of August.

Etymology.—The name is derived from *potens*, powerful, in allusion to the medical properties of some of the species. The origin of the common name is sufficiently obvious.

Properties and Uses.—The Cinquefoil has been used for tanning leather. The external or cortical part only is employed, and it is said to impart a fine grain to calf leather. The plant is eaten by horses, cows, goats, and sheep, but is refused by swine. The roots have a bitterish styptic taste, and give out their astringent matter both to water and spirit.

In these respects it nearly resembles the tormentil, but is less powerful.

They were much used in intermittent fevers by the ancients, the efficacy of which in those cases is alluded to by Hippocrates. Ray asserts that the peasantry of his time used them for the same purpose, and Senac bears testimony also on the same point. Cinquefoil was for many ages employed as a remedy in all diseases where astringents were deemed necessary, particularly diarrhoea and dysentery, spitting of blood, bleeding at the nose, etc.

Externally, the expressed juice of the fresh root, or a strong decoction, was employed in chronic inflammation of the eyes; and the latter in foul ulcers of the mouth or throat, scorbutic state of the gums, and all malignant ulcers.

The leaves of Cinquefoil possess the same qualities as the root, but are much weaker. The cortical part of the root should be selected.

At the present time the plant has quite fallen into disuse.

XLVII.

SALVIA PRATENSIS, L.

MEADOW CLARY, OR MEADOW SAGE.

Nat. Ord. LABIATÆ.

F. SAUGE DES PRÉS. *G.* WIESENSALBEI, SCHARLEI.

Description.—Root perennial. Stem quadrangular, branched, leafy, tinged with purple towards the summit, from 8 inches to 2 feet high. Lower leaves cordate-oblong, irregularly crenate, wrinkled, veiny, borne on moderately long footstalks; upper sessile, or nearly so, acuminate, embracing the stem. Flowers terminate the stem and branches in large spikes of purplish blue flowers, about 6 in a whorl, with a pair of heart-shaped acuminate bracts at the base of each whorl. Calyx striated, beset with glandular hairs, and formed of 2 unequal lips, the upper 3-toothed; corolla large, bluish purple, labiate,



Clary

Colchicum or Meadow Saffron



Colubrine

Coriander



tube dilated upwards; upper lip concave, viscid at the summit, 3-lobed, the middle lobe largest, notched. The 2 filaments transversely attached to a footstalk, 1 only of each bearing a 1-celled anther. Ovary superior and 4-cleft, surmounted with a filiform curved style and a bifid stigma. Seeds 4, apparently naked, and lodged in the bottom of the persistent calyx. (Plate XIII, fig. 1: (a) lower leaf; (b) calyx; (c) stamens; (d) pistil.)

Distribution.—Europe, from Belgium southwards, Western Asia. In dry pastures in some parts of England, but rare. Cultivated in gardens. Flowers June to August.

Etymology.—The name is derived from *salvo*, to save or heal, on account of the supposed healing properties of some of the species.

Properties and Uses.—Bechstein observes that this plant, when used as a substitute for hops, imparts an agreeable flavour to beer and wine. It may also be used in tanning leather, and for dyeing a permanent dark brown.

The leaves and flowers have an agreeable odour and an aromatic and somewhat bitter taste. The seeds are slightly bitter and mucilaginous. Both water and rectified spirit extract the virtues of the plant. The leaves and flowers have been recommended with those of common Clary (*S. Sclarea*), both internally and externally, for the cure of windy colic, fluor albus, hysterical affections, and suppression of the menses. For these purposes they were employed in decoction either with water or beer; or they were otherwise combined with different herbs, and made into a spirituous tincture or a compound infusion.

Externally, it has chiefly been employed in fluor albus, in the form of an ointment made with fresh butter, to be plentifully rubbed in all round the seat of the disease.

There is one other British species, the wild Clary (*Salvia verbenaca*), which is rather frequent in dry, chalky, or gravelly pastures. The flowers are much smaller than in the meadow Clary, the leaves deeply serrated, and the whole plant darker coloured. It is aromatic, and the seeds mucilaginous.

The annual Clary (*Salvia Horminum*) was once held in

considerable repute as a medicine; and its mucilaginous seed, bruised, and a small quantity put under the eyelids, was used to remove any sand or dust that might have lodged there.

XLVIII.

GALIUM APARINE, L. CLEAVERS, OR GOOSE-GRASS.

Nat. Ord. RUBIACEÆ.

F. GRATERON, RIEBLE. *G.* KLEBEKRAUT.

Description.—Roots annual, slender, somewhat 4-sided, furnished with a few short delicate fibres. Stems weak, trailing, jointed, quadrangular, very rough at the angles with reflexed bristles, from 2 to 6 feet long, straggling among bushes. Leaves plane, lanceolate, hairy above, glabrous beneath, hispid at the midrib, mucronate at the extremity, and arranged in whorls of about 8 together, in a stellate form. Flowers few, small, white, on 2 or 3 short, simple footstalks, arising from the axils of the leaves. Calyx an indistinct 4-toothed margin. Corolla monopetalous, wheel-shaped, with 4 deep, acute segments. Filaments four in number, awl-shaped, arising from the base of the corolla, shorter than the limb, and terminated by 2-celled anthers. Ovary inferior, 2-lobed, with 2 divaricating styles, and clavate stigmas. Fruit a dry, 2-lobed, indehiscent pericarp (consisting, as it were, of 2 globose bodies united together), with 2 cells and 2 seeds. (Plate XII., fig. 4: (a) the entire flower, magnified; (b) the pistil; (c) the fruit.)

Distribution.—Europe (Arctic), Northern Africa, Northern Asia, Western Asia to India, temperate North and South America. Plentiful in hedges and waste places in this country. Flowers June and July.

Etymology.—The generic name is derived from γαλα, milk, one of the species having been employed to curdle milk. By the older botanists, this plant was called Aparine, from απαίρω, to lay hold of, because of the hooked bristles which attach

themselves to passing objects. In some parts of the country it goes by the name of Catch-weed and Scratch-weed, and the fruit is called burs.

Properties and Uses.—The stalks are used in Sweden as a strainer for milk, the bristles with which they are covered effectually preventing the passage of hairs and other extraneous bodies. Dioscorides informs us that the shepherds made use of them for the same purpose in his time. The root, in common with many others of the same natural order, will dye red, and like the madder, tinge the bones of animals that feed upon it. The seeds roasted, bear a considerable resemblance to coffee, and have been used as a substitute. The plant, when dry, proves injurious to cattle, on account of its rigid curved hairs; but in its growing state, it is eaten by all animals except swine. Young geese are extremely fond of it; hence, one of the popular names, Goose-grass.

Goose-grass, like many other plants, has from time to time had its various advocates. Its expressed juice has been given as an aperient, diuretic, and antiscorbutic medicine. The celebrated Theodore Torquet de Mayerne found it extremely serviceable in the cure of dropsies, particularly in the earlier stage of the disease. Simon Pauli says that in Denmark the distilled water proved beneficial in affections of the chest and in hypochondriacal cases. It has also been used in diarrhoea, scrofula, gravel, etc. In this, and other countries, the juice of the plant constitutes one of the "spring juices" taken by country people for scorbutic complaints. It has been strongly recommended for the cure of cancers, for outward application in the form of a cataplasm. Not only in cancerous, but in every foul, ill-conditioned ulcer, whether scrofulous or scorbutic, this plant was said to be of the utmost service; but its external application at all times was greatly assisted by the internal use of the juice or of a decoction.

XLIX.

DIANTHUS CARYOPHYLLUS, L.

CLOVE PINK, OR GILLIFLOWER.

Nat. Ord. CARYOPHYLLÆÆ.*F.* CILLET COMMUN, GIROFLÉE MUSQUÉE. *G.* GARTENNELKE.

Description.—Root perennial, rather woody, branched and beset with numerous fibres. Stems slender, erect, branched, smooth, jointed, glaucous, 1 to 2 feet high. Lower leaves numerous, linear, channelled, acute, entire, glaucous; those of the stem shorter, in pairs at the joints. Flowers solitary, on the tops of the stalks. Calyx tubular, 5-toothed at the summit, surrounded at the base with 4 imbricated, very short, ovate, submucronate scales or bracts. Corolla of 5 flesh-coloured (or crimson under cultivation) petals, broad, patent, crenated, and furnished with long claws. Stamens 10, filaments longer than the calyx, spreading towards the summit; anthers oblong, compressed. Ovary oval, with subulate styles, longer than the stamens, and terminated by revolute tapering stigmas. Capsule cylindrical, 1-celled, opening by 4 teeth, and containing many roundish, compressed seeds. (Plate XIV., fig. 3: (a) a single petal, with its claw; (b) the calyx, opened to show the pistil; (c) the fruit.)

Distribution.—Belgium and France to Italy, Hungary and Greece. Found on old castle walls in this country, but only in a naturalized state. Frequently cultivated in gardens. Flowers July and August.

Etymology and History.—The generic name is derived from *διος*, of Jupiter, and *ανθος*, the flower, expressive of the high value which was attached to these beautiful plants. This species was named *Caryophyllus* by the ancient writers, on account of the similarity of its odour to that of the clove, which was called by the Arabs *Garunfel*, metamorphosed by the Greeks into *καρυοφυλλον*.

The genus to which this plant belongs is very extensive, and is valued both for the beauty of its flowers and

for the evergreen nature of their foliage. The favourite carnation—

“The curious, choice, Clove July-flower,”

is generally allowed to have sprung from the Clove-pink, which Chaucer calls “cloue gilofre,” and recommends as good—

“to put in ale,
Whether it be moist or stale.”

Spenser and Ben Jonson generally designate the plant by the name of “Sops-in-wine,” it being customary in their time to infuse the flowers in wine for the sake of the spicy flavour they impart:—

“Bring hether the pincke and purple cullambine
With gelliflowers;
Bring Coronations and *Sops-in-wine* !”

Shepherd's Calendar.

“Fair ox-eye, goldy-locks and columbine
Pinks, goulands, king-cups and sweet *Sops-in-wine*.”

Pan's Anniversary.

Properties and Uses.—The odour of the petals is pleasant and aromatic, somewhat resembling that of the clove-spice. The taste is slightly bitter and sub-astringent, and is rendered more powerful by drying.

The Clove-pink was highly commended by the medical writers of former days as a cordial, sudorific, and anti-poison. The flowers were recommended “in all Disorders of the Head, in Palpitations of the Heart, and in nervous Complaints of whatever Kind. They have been also much praised in malignant and pestilential Fevers. *Simon Paulli* tells us, with an Air of great Certainty and Assurance, that he had cur'd great numbers of People of malignant and pestilential Fevers, by no other Medicine but a strong Infusion of these Flowers in Water, which he tells us is a powerful Sudorific and Diuretic, and that it at the same Time comforts the Patient instead of weakening him.” For their cordial and cephalic properties they appear to have been especially esteemed, and were much valued as a remedy of some virtue in low putrid fevers, syncope, convulsions, trembling of the limbs, etc.

An infusion of the flowers was given in typhus fever to produce perspiration. A vinegar prepared from them by maceration was said to be very agreeable to smell in nervous headaches, and extremely serviceable in contagious fevers to sprinkle in the rooms.

L.

COLCHICUM AUTUMNALE, L.

COLCHICUM, OR MEADOW-SAFFRON.

Nat. Ord. LILIACEÆ.

F. COLCHIQUE, TUE-CHIEN. *G.* HERBSTZEITLOSE, NACHTJE JUNGFER.

Description.—Corm fleshy, lactescent, covered with a brown membranous coat, and furnished at the base with many small fibrous roots. Leaves spring immediately from the corm; long, erect, broadly lanceolate, acute, entire, dark green, sheathing at the base, and united 3 or 4 together. Flowers proceed from the corm, and are surrounded at the base by a membranous sheath. Perianth (calyx) single, petaloid, of a light roseate purple, with a very long narrow tube arising immediately from the corm, and a 6-parted limb whose segments are oblong-ovate, obtuse, erect, and concave. Stamens 6, with white subulate filaments, inserted on the segments of the perianth; anthers oblong, versatile, yellow, turned outwards. Ovary situated at the bottom of the tube, in the midst of the corm, supporting 3 long filiform styles, terminated by as many linear recurved and downy stigmas. Fruit a subsessile capsule, with 3 cells and 3 straight lobes, rather acute at the summit, connected at their lower part, and opening longitudinally on their inner face. Seeds small, whitish, smooth, and rounded, with a membranous testa, and a dense fleshy albumen. (Plate XIII., fig. 2: (a) the capsule opening naturally; (b) the pistil; (c) the capsule cut transversely to show the seeds.)

Distribution.—Europe, from Denmark southwards. In

meadows in some parts of England, but rare and local. Naturalized in Scotland, South and Middle Ireland. The flowers appear in September and October, before the leaves and fruit, which are not produced until the following spring.

Miller says, "I have observed it in great plenty in the meadows in Warwickshire, at the beginning of September. The country people call the flowers Naked Ladies, because they come up naked, without any leaves or cover." A similar name is given them in other countries.

Etymology.—This plant owes its generic name to Colchis, in Natolia, which abounded in this and other poisonous vegetables, and hence perhaps gave rise to some of the poetical fictions respecting the enchantress Medea, who was not unfrequently called Colchis, from the place of her birth.

Development of the Corm.—The economy of this plant is so interesting as to deserve especial notice. The flowers appear about the latter end of September, and in a short time perish without leaving any appearance of leaves or fruit. The ovary, which was impregnated in autumn, gradually develops underground, and finds a safe hybernaculum in the bulb. In spring the fruit rises on a short peduncle, together with the leaves, which perish before the end of June, when the seeds are ripe. In the mean time a new bulb has sprung from the side of the old one, and when this has perished, is ready to fulfil its destined office, by providing for the fecundation of the flower and the nourishment of the germ of a succeeding plant. There are, in fact, two germs from the same bulb—one lower, just described, producing the flower and seed; the other situated above, also furnished with a stem, but seldom bearing flowers.

"The fresh corm is conical or inversely pear-shaped, about 2 inches long by an inch or more wide; rounded on one side, flattish on the other; covered by a bright brown, membranous skin, within which is a second of paler colour. When cut transversely, it appears white, firm, fleshy and homogeneous, abounding in a bitter starchy juice of disagreeable odour. The dried slices are inodorous, and have a bitterish taste. They should be of a good white, clean, crisp and brittle, not mouldy or stained."—*Pharmacographia*, p. 637.

In this country it is usual to dig up the corms and bring them to market in July, at the period between the withering of the foliage and the opening of the flower. They are used both in the fresh and dried states. If required to be kept, they are cut in thin, even slices across the corm, and dried rapidly with a gentle heat.

Properties and Uses.—The true *Colchicum* varies greatly in its qualities. Krapf asserts that in Carniola, towards the end of autumn, he has eaten whole bulbs, and experienced no disagreeable effect, except an ungrateful bitterness. On the other hand, it is affirmed by various writers to be very acrimonious and dangerous in its effects; but these discrepancies are to be attributed almost entirely to the time of year at which the bulb is dug up. Climate and soil have also their share of influence.

The recent bulb, when taken up at the proper season, is inodorous, bitter, hot, and acrid to the taste; and if a small portion be swallowed, a sensation of warmth is produced in the stomach. These properties are thought to reside in the milky juice which exudes when the bulb is cut transversely, and which contains a peculiar alkaloid, called *colchicin*.

On the authority of Schroff, the corms possess the greatest medicinal activity when collected in the autumn; and that if dried entire, instead of being sliced, they retain their properties for a much longer period.

There can be no doubt of the deleterious and sometime fatal effects of the Meadow-Saffron upon animals, but contradictory statements are given on this point by different authors; some affirming that horses eat the flowers of the plant with impunity, while others state that they never touch it, let it be ever so plentiful. Cattle seldom eat the plant as it grows in meadows, but when dried and mixed with hay it has produced fatal consequences. "Fallow-deer, after eating it in their forage, have been seized with extreme pain and a copious flux of blood, and after death the stomach and intestines exhibited evident traces of inflammation and gangrene." Scopoli mentions that a calf died from eating the flowers, and Störck relates some experiments in which a small quantity of

the bulb proved fatal to dogs in a very short time. The old French name, *Tue-chien*, would seem to intimate that dogs are especially affected by this poison.

In spring, when the seeds are ripe, they are liable to be swallowed by animals, and by adhering to the coats of the stomach, produce inflammation, which may terminate in death.

To the human frame Colchicum is very deleterious. Several children have lost their lives in consequence of having eaten the seeds, but only in the spring, when the seed vessel is fully matured. Respecting the properties of the bulb, authors have given very different reports; but many well-authenticated cases of fatal effects, both from the corm itself as well as from the seed and from preparations, are on record.

The medicinal properties of the Colchicum have been known from an early period. In the reign of Queen Elizabeth, a translation of Wertzung's work appeared, in which a very favourable account of the virtues of Colchicum is given. More recently we find it enjoying its reputation, and entering into the *Pulvis Arthriticus* of Sir Theodore Mayerne, in which it was combined, among other *et cetera*, with the powder of unburied skulls (*cranii humani insepulti*); an ingredient which, it would appear, was not much relished by his Majesty King James the First, for it is added in a note—"N.B. In casu D. N. Regis qui *αρθροποφάγους* odit, cranium humanum poterit in ossium bubulorum rasuram permutari." What alteration the efficacy of the nostrum suffered from this change we are not informed.

Colchicum, duly preserved, is powerfully diuretic, purgative, and emetic. It is to the enterprising spirit of Störck that we are chiefly indebted for the knowledge of its diuretic virtue, who, by experiments with a vinous infusion of the fresh root on his own person, was fully satisfied, that if its deleterious acrimony were destroyed, it might prove an efficacious medicine; accordingly he invented an acetous preparation.

The disorders for which Colchicum is most celebrated are those of gout and rheumatism, and that complicated form of

disease called rheumatic gout, as well as in cutaneous diseases. In France it has long been a favourite gout remedy.

Although a highly valuable agent in gout and rheumatism, *Colchicum* must be very cautiously used; for although it has been taken by many persons with the best effects, acting almost as a charm in setting aside a paroxysm of the disease, it will sometimes produce the most distressing and even fatal effects. Instances are on record where death ensued on the following day after a drachm of the wine of *Colchicum* had been administered over night, in cases of dropsy. The tincture is the most active preparation of *Colchicum*, and next to it that known as wine of *Colchicum*.

The seeds possess the same properties as the bulbs, and are used for similar purposes.

At one time it was supposed that the *Hermadactylus* of the ancients was the produce of *Colchicum autumnale*. Some authors, however, consider that *C. variegatum* is the plant which produces hermodactyls, but it is by no means satisfactorily ascertained what species is to be so accredited. Hanbury says, "The corms of other species of *Colchicum* of Eastern origin anciently enjoyed great reputation in medicine. These corms are in structure precisely similar to those of the ordinary *Colchicum*. They are entire, but deprived of membranous envelopes, of a flattened, heart-shaped form, not wrinkled on the surface, and often very small in size. The starch grains they contain are similar to those of *C. autumnale*, but in some specimens twice as large."—*Pharmacographia*, p. 638.

LL.

TUSSILAGO FARFARA, L.

COLTSFOOT.

Nat. Ord. COMPOSITÆ.*F.* TUSSILAGE, PAS D'ANE. *G.* HUFLATTICH.

Description.—Root perennial, very long, penetrating deep into the earth, whitish, and sending out numerous slender fibres, which creep horizontally. The scapes, which appear before the leaves, are erect, simple, 1-flowered, slightly furrowed, downy, from 6 to 10 inches high, pale green varying to a reddish tinge, clothed with numerous imbricated, lanceolate, acute scales. Leaves all radical, large, cordate, petiolate, slightly lobed and toothed, bright green on the upper surface, whitish and cottony beneath. Involucre of a simple row of linear equal scales, erect at first, afterwards reflexed. Receptacle naked, flat, ultimately becoming convex. Florets of the circumference long, linear, numerous, and generally fertile; those of the disk few in number, mostly barren, short, tubular, with a limb divided into 5 acute, recurved segments. Anthers united into a tube. Ovary obovate, with a filiform style, and protruded linear stigmas. Fruit oblong, compressed, crowned with a simple sessile pappus, and containing a solitary erect exalbuminous seed. (Plate XIV., fig. 2: (a) one of the female florets of the ray; (b) one of the central hermaphrodite florets; (c) the fruit.)

Distribution.—Europe, from Italy to Sweden. In this country in moist heavy soils. Loudon says, "The clayey part of the pestilential marennes of Tuscany, where scarcely any other plant will grow, is covered with Coltsfoot." Flowers March and April.

Etymology.—The generic name is derived from *tussis*, a cough, and *ago*, to drive away, in allusion to the pectoral properties of the flowers; and the term $\beta\eta\chi\iota\omicron\nu$, by which it is mentioned by Dioscorides, was formed from $\beta\eta\xi$, a cough.

The specific name is an alteration of *farfarus*, applied by the Greeks to the white poplar, the leaves of which bear some resemblance to the Coltsfoot. Some of the ancient botanists designated this plant by the whimsical name of *Filius ante patrem*, because the flowers appear before the leaves. It is sometimes called Foal's-foot, Horse-hoof, and Bull's-foot.

Properties and Uses.—The leaves are often smoked for tobacco, and the downy substance that clothes their under surface, after being dipped in a solution of saltpetre and dried in the sun, forms excellent tinder. Both leaves and flowers have been employed medicinally; the former should be collected and dried as soon as they are quite expanded, and before they have attained their full size. The dried plant is inodorous, mucilaginous, rather disagreeably bitter and styptic to the taste.

From the earliest times Coltsfoot has been esteemed useful in coughs and other pectoral affections. Hippocrates recommended the root mixed with honey in ulcerations of the lungs. Dioscorides, Pliny, and Galen relate that the smoke of the leaves, received into the mouth through a funnel or reed, is efficacious in coughs and laborious breathing; and, by the testimony of Linneus, it is in Sweden a popular remedy for coughs. A decoction of the leaves has been recommended in scrofula, coughs, and other pulmonary complaints. Cataplasms made from the plant have been applied to inflamed surfaces, and the fumes have been deemed efficacious in toothache. The root, flowers, and leaves have all been used medicinally, but the latter most commonly.

Dr. Paris informs us that an old nostrum, sold under the name of Essence of Coltsfoot, consisted of equal parts of balsam of Tolu and compound tincture of benzoin, to which was added double the quantity of spirits of wine.

The leaves of Coltsfoot dried, form a principal ingredient in all the herb tobaccos, and constitute the chief part of their value. The best of these mixtures consists of the following plants, the proportions of which may be altered according to circumstances:—

Take of Coltsfoot leaves, dried	...	...	one pound;
Eyebright, }	} of each	...	half a pound;
Buck-bean, }		...	
Wood betony	...	...	four ounces;
Rosemary	...	...	two ounces;
Common thyme	...	...	one ounce and half;
Lavender	...	...	one ounce.

To these may be added, with great advantage—

Flowers of Coltsfoot	...	...	two ounces;
Rosemary	...	...	half an ounce.

Some add rose-leaves and chamomile flowers. The herbs should be gathered in their season, and dried in the shade, then rubbed to a coarse powder between the hands. Those who prefer a mild tobacco, may increase the quantity of Coltsfoot, which some prefer in the proportion of one-half to the whole quantity; and where this is used as a remedy for asthma or consumptive cough, the Coltsfoot ought to occupy at the least that proportion.

LII.

AQUILEGIA VULGARIS, L. COLUMBINE.

Nat. Ord. RANUNCULACEÆ.

F. ANCOLIE, COLOMBINE. *G.* AKELEI.

Description.—Root tuberous, branched, fibrous, whitish. Stem erect, cylindrical, branched, leafy, slightly hairy, reddish at the base, 2 to 3 feet high. Radical leaves large, thrice ternate, with rounded 3-lobed, crenated leaflets, on very long footstalks; those of the stem smaller towards the summit, the uppermost nearly sessile, simply ternate, or 3-lobed; all deep green above, and glaucous beneath. Flowers terminal, pendent, on long axillary peduncles. Calyx resembles a corolla, and consists of 5 coloured, ovate, equal, spreading sepals. Petals 5, purplish blue, like the sepals, alternate with them, tubular, dilated upwards, their lower portion extended into a long

nectareous spur, somewhat incurved and obtuse at the end. Stamens from 30 to 40, with subulate filaments, inner abortive, dilated, and clasping the ovaries; anthers cordate, erect. Carpels 5, superior, oblong, each tapering into an awl-shaped, erect style, about as long as the stamens, and terminated by a simple stigma. Fruit of 5 carpels, or follicles, nearly cylindrical, straight, pointed, 1-celled, 1-valved, and many-seeded. Seeds oval, smooth, dark, and shining, and attached to both edges of the suture of each follicle. (Plate XIII., fig. 3: (a) stamens and pistils; (b) a petal with its spur; (c) the pistils, the carpels of which are surrounded with ten scales; (d) the fruit, consisting of 5 carpels or follicles united at the base.)

Distribution.—Europe, Canaries, Siberia, Asia to Western Himalaya. In woods and thickets in several parts of England, but often naturalized, having escaped from gardens, where it is very generally cultivated. Flowers in May and June.

Etymology.—The generic name is derived from *aquila*, an eagle, in reference to the spurs of the petals, which were thought to resemble the claws of that bird. The common English name suggests the idea of the more gentle dove. There is some doubt as to whether the Columbine was familiar to the ancients: Caspar Bauhin considers it the *ιασιωρη* of Theophrastus, and the *ισοπυρον* of Dioscorides.

It is an old inhabitant of the flower-garden, and there are many varieties with violet, purple, red, flesh-coloured, and white flowers.

Properties and Uses.—Goats, and sometimes sheep, will eat this plant; other animals refuse it. Bees are very fond of the petals.

The odour of the recent plant is weak, ungrateful, and rather stupefying; the taste bitter and nauseous. The bruised seeds are somewhat mucilaginous, with a slight bitterness and acrimony, the odour strong, and so tenacious that it is with great difficulty removed from the mortar in which they are pounded. With regard to the poisonous effects of this plant, Linneus states that children have lost their lives by taking an overdose, administered as a medicine by ignorant persons.

The medical properties of Columbine have been greatly extolled at various times. The root, the leaves, the seeds, and the flowers have been esteemed aperitive, diuretic, diaphoretic, and antiscorbutic. Simon Pauli asserts that children attacked with measles and small-pox have been recovered, as if from the dead, by taking half a drachm of the seeds in powder, or twice that quantity in emulsion. Scopoli asserts that he has found them extremely useful in facilitating the eruption of the pustules in those diseases, and Linneus inclines to the same opinion. Tournefort recommends a tincture of the flowers, made with spirits of wine and mixed with equal parts of tincture of lac and mastic, as very efficacious in ulcerations of the mouth and scorbutic affections of the gums. Ray states that a decoction of the leaves makes an excellent gargle in inflammation of the throat and trachea.

It is not used at the present time.

LIII.

SYMPHYTUM OFFICINALE, L. COMFREY.

Nat. Ord. BORAGINÆÆ.

F. CONSOUDE, *LANGUE DE VACHE.* *G.* WALLWURZ.

Description. — Root perennial, thick, tapering, somewhat branched, fibrous, brownish black externally, white within. Stems succulent, erect, branched, rough, with strong hairs, somewhat angular, slightly membranous at the angles, about 2 feet high. Leaves alternate, large, attenuate, acute, deep green, rough, and fringed with short hairs; lower ones ovate, petiolate; upper nearly sessile, ovate-lanceolate, very decurrent, so as to form winged appendages to the stem. Flowers in a short, drooping raceme, somewhat incurved towards the summit, and generally turned towards the same side; they vary from a yellowish white to a purplish or reddish hue. Calyx divided into 5 lanceolate segments, which are rough, erect, pointed, about the length of the tube of the corolla.

Corolla cylindrical, swollen upwards, with a short tube, and divided at the limb into 5 short recurved segments, the throat closed with 5 subulate scales converging into a cone. Stamens 5, filaments short, inserted into the corolla. Anthers yellow, erect, sagittate, concealed by the scales. Ovary 4-parted, style longer than the corolla, stigma small, obtuse. Fruit consists of 4 angular, dark, shining achenia, or small nuts, situated in the bottom of the persistent calyx. (Plate X., fig. 3: (a) calyx and pistil; (b) the corolla, opened to show the stamens and scales; (c) the fruit.)

Distribution.—Europe, Western Siberia. In this country by river banks, and in moist or watery places. Flowers May and June.

Etymology.—The Comfrey is generally supposed to be the plant described by Dioscorides, under the name of *συμφυτον*, derived from *συμψνω*, to unite, on account of the consolidating and vulnerary qualities which were ever attributed to this plant; hence also the Latin *Consolida*, *Symphytum*, and the French *Consoude*. The term Comfrey was probably derived from the old French word *Comfrie*, or *Consyre*, having the same meaning as the foregoing. In rural dialects it has also the names of Consound, Knit-back, Bone-set, and Blackwort.

Properties and Uses.—It is eaten by sheep and cows, but refused by other animals. The leaves were formerly used to impart a flavour to cakes and panada, and the young shoots are said to form good and nutritious food. A strong decoction of the plant will dye wool of a brown colour. The root has been applied to several important purposes. The beautiful crimson colour obtained from gum-lac was extracted by means of a decoction of this root; and the natives of Angora prepare from it a kind of glue, which they use to spin the celebrated fleeces of their country into fine yarn. It has also been employed for correcting the brittleness of flax, and the roughness of wool. Tabernæmontanus, a German writer, highly extols its superiority in tanning leather. He boiled ten pounds of the root in four gallons of water till one-half was consumed; with this decoction he repeatedly dressed the leather, which, thus prepared, became not only more durable than by any other

method, but it uniformly remained pliable and elastic. Another experimentalist, after making a strong infusion of the root, allowed it to stand for several days, and when the woody and fibrous parts had subsided, poured off the liquor, and by dropping into it diluted oil of vitriol, he precipitated the mucilaginous part, which was again filtered and rendered serviceable for tanning, by neutralizing its acidity with a ley formed of common potash.

The root, which was the part most frequently used in medicine, is inodorous, insipid, sweetish, viscid and glutinous. Comfrey was highly extolled by the ancients for its supposed vulnerary properties; it was also esteemed emollient, agglutinant, and astringent, and recommended not only in spitting of blood, uterine hemorrhages, consumption, coughs, inflammation of the kidneys and urinary organs, but as very potent in effecting the reunion of wounds, etc. Thus, according to Gerard, "the roots of Comfrey stamped, and the iuice drunke with wine, helpeth those that spit blood, and healeth all inward wounds and burstings. The same bruised and layd to in a manner of a plaister doth heale all fresh and green wounds, and are so glutinative that it will soder or glew together meat that is chopt in pieces, seething in a pot, and make it in one lump. The roots boiled and drunke do clense the brest from flegme, and cure the griefes of the lungs, especially if they be confect with sugar and syrup; it prevailleth much against ruptures or burstings." Dioscorides used it in hæmoptysis, and Pfann states that a small quantity of the powdered root snuffed up the nostrils will stop bleeding at the nose. Simon Pauli recommended the application of it to fractured bones, and Houston, in hernia. It has also been recommended in gout, catarrh, dysentery, diarrhœa, etc., and externally to wounds of the nerves, tendons, and arteries.

LIV.

CORIANDRUM SATIVUM, L. CORIANDER.

Nat. Ord. UMBELLIFERÆ.*F.* CORIANDRE. *G.* KORIANDER, WANZENDILLE.

Description.—Root annual, tapering, slender, somewhat branched, whitish, and furnished with a few fibres. Stems erect, branched, leafy, cylindrical, striated, rather glaucous, about 2 feet high. Lower leaves bipinnate, with pinnatifid, broad, wedge-shaped, toothed segments; upper tripartite, with narrow, linear, acute segments. Flowers in terminal umbels of from 5 to 8 rays, which in general have no involucre at the base. Umbellules more numerous, commonly furnished with an involucre of linear-lanceolate leaves, placed laterally. Calyx of 5 unequal acute teeth. Petals 5, white or tinged with purple, obcordate, inflexed at the point; innermost nearly equal; outer large, radiant, and bifid. Stamens 5, with thread-shaped filaments, and roundish yellow anthers. Ovary inferior, globose, supporting 2 short, spreading styles, and simple obtuse stigmas. Fruit of 2 hemispherical carpels, each with a projecting margin on its inner and flat side, which combines with the opposite one, forming a complete globe, which at maturity is traversed by 10 obscure ridges. Seed concave in front, covered with a loose membrane. (Plate XIII., fig. 4: (a) lower leaf; (b) floret of the circumference of the umbel; (c) floret of the centre; (d) fruit.)

Distribution.—South-Eastern Europe, Western Asia. The native country of the Coriander has not been correctly ascertained; in all probability it is indigenous to the Mediterranean and Caucasian regions, and having been early cultivated in England for medicinal and culinary purposes, has escaped into fields and waste places. Flowers in June, and the fruits ripen in August.

Etymology.—Several writers have imagined that this is the *κοριον* of Dioscorides, the *κοριαννον* of Theophrastus, and the *Coriandrum* of Pliny, but their identity is not fully estab-

lished. The generic name *Coriandrum* is derived from *κορις*, a bug, in allusion to the fetid smell of the bruised foliage.

Cultivation.—Coriander is cultivated in England in the eastern counties, especially in Essex, and is called Col by the farmers. It is grown in rows 10 to 12 inches apart, and is cut down when ripe with sickles, and thrashed out on cloths in the field. The plant is cultivated also in various parts of Continental Europe, and in Northern Africa and India, the fruits shipped from Bombay being of large size and elongated form.

Properties and Uses.—Although the leaves in their recent state have a strong disagreeable smell, yet when dried they are pleasant and aromatic. In some countries they are eaten in soups and salads, and the inhabitants of Peru are excessively fond of the flavour. Alpinus states that the Egyptians use the herb freely in soups; it is eaten also in Spain, and esteemed cordial, but Hoffman relates, on the authority of a monk, instances of fatuity produced by it. Dioscorides likewise attributed deleterious properties to the seed, but Dr. Withering has known six drachms taken at once without any remarkable effect.

Coriander fruits enter into the composition of several liquors, and form an ingredient in curry powder. When incruusted with sugar, they are sold by the confectioners under the name of coriander comfits. The virtues of the fruits are completely extracted by rectified spirit, but only partially by water. In distillation with water they yield a yellowish essential oil, of a very aromatic and powerful odour.

The energetic qualities of this plant led the ancient physicians to consider it very poisonous; the juice of the leaves they considered nearly as deleterious as that of hemlock. Gerard, who probably derived his information from Avicenna, tells us that "the juice of the greene Coriander leaues, taken in the quantitie of four dragmes, killeth and poisoneth the body."

Coriander fruits have long been known as carminative, stomachic, and diaphoretic, and have been used in debility of the stomach, flatulence, etc. At the present time they are

considered stimulant and carminative, but are seldom employed in medicine; they are used in veterinary practice, however, and by distillers of gin. At one time they were much used in the production of a carminative water or spirit, as well as in a simple distilled water.

LV.

PRIMULA VERIS, L. COWSLIP.

Nat. Ord. PRIMULACEÆ.

F. PRIMEVÈRE, PRIMEROLLE. *G.* SCHLÜSSELBLUME.

Description.—Root perennial, consisting of a fleshy rhizome, beset with several small tubercles, furnished with numerous long, nearly simple fibres. Leaves ovate-oblong, wrinkled, toothed, obtuse, more or less pubescent, bright green above, lighter beneath, and tapering into a petiole at the base, proceeding immediately from the root. From the middle of the leaves rise 1 or 2 upright scapes, naked, cylindrical, somewhat pubescent, about 4 or 5 inches high, terminated by an umbel of sweet-smelling flowers, which are pedicellate, drooping, and furnished with a short subulate bract at the base of each pedicel. Calyx pale yellowish green, permanent, tubular, with 5 angles, and 5 short obtuse teeth. Tube of the corolla as long as the calyx; limb concave, with 5 short lobes, yellow, marked near the orifice with 5 orange-coloured spots. Stamens 5; filaments very short; anthers erect, acute, included in the tube. Ovary globose, surmounted by a filiform style and a globose stigma. Capsule glabrous, ovate-oblong, 1-celled, opening at the top with 10 acute teeth. Seeds numerous, brown, wrinkled, attached to a free central placenta. (Plate XV., fig. 1: (a) corolla opened to show the pistil and stamens; (b) the capsule enclosed in the calyx; (c) the capsule as it opens at maturity; (d) the same cut perpendicularly to show the central placenta to which the seeds are attached; (e) seed magnified.)

Distribution.—Europe, Siberia, Western Asia, Northern Africa. In meadows and pastures in many parts of England. Flowers April and May.

Etymology.—The generic name is very appropriately derived from *primus*, first, on account of the early appearance of the flowers. The name Cowslip is, perhaps, owing to its growing in pastures where it often meets the cow's lip.

Thus, in "Pan's Anniversary"—

"Strew, strew the glad and smiling ground
With every flower, yet not confound
The primrose drop—the Spring's own spouse,
Bright days-eyes, and the *lips-of-cows*."

BEN JONSON.

It has also been called Paigles and Palsey-wort, the latter being a synonym of *Herba Paralysis*, in allusion to its medicinal qualities.

The fairy's description of the Cowslip must not be omitted. When talking of her queen, she says:—

"The Cowslips tall her pensioners be,
In their gold coats spots you see,
These be rubies, fairy favours."

The "dainty Ariel" sings:—

"Where the bee sucks there suck I,
In a Cowslip's bell I lie,
There I couch when owls do cry."

Properties and Uses.—The flowers, which are very sweet and fragrant, are often used to make wine, which is flavoured like muscadell, and is very sparkling and pleasant. The leaves have been used as salad and pot-herbs, and, in the absence of mulberry-leaves, for feeding silk-worms. In some countries an infusion of the flowers is fermented with sugar or honey, and the juice of lemons, and an acidulous vinous liquor is thus prepared,—a very grateful summer beverage. The roots are also put into casks of wine or beer to impart additional strength and flavour to those liquids.

The root in its recent state exhales a fragrant odour, resembling anise, and has a slightly astringent and bitter taste. The

leaves are herbaceous and nearly scentless. The flowers impart their virtues both to water and spirit.

The Cowslip, though once highly celebrated for its narcotic, nervine, and anodyne virtues, has for many years fallen into disrepute, though still employed as a rustic medicine. At one time it was thought peculiarly efficacious in paralysis. The distilled water, rubbed on the forehead, was reputed to cure headache. Bergius recommends an infusion of the flowers in rheumatic affections, and Boerhaave and Linneus esteem it useful in assuaging pain and provoking sleep.

All parts of the plant were, by the old writers, considered to possess medicinal properties, and within comparatively recent times the flowers were so far considered narcotic and sedative, as to be administered, in the forms of infusion or distilled water, for the purpose of relieving pain or inducing sleep when other narcotics were known to irritate and distress the patient.

For medical use the flowers were directed to be freed from their calyces, dried quickly, and preserved in a dry place.

LVI.

RANUNCULUS ACRIS, L. MEADOW CROWFOOT.

Nat. Ord. RANUNCULACEÆ.

F. RENONCULE ACRE, GRENOUILLETTE. *G.* SCHARFER HAHNENFUSS.

Description.—Rootstock perennial, composed of long, white, slender fibres. Stems erect, round, fistulous, branched, many-flowered, moderately leafy, beset with minute appressed hairs, about 2 feet high. Radical leaves petiolate, hairy, palmated, angular, divided into 3 or 5 variously subdivided lobes, incised, toothed, acute, and often marked with a brown spot in the centre; cauline leaves similar, but less deeply divided; uppermost divided into 3 straight linear segments, or simple and linear. Flowers terminal, on long, hairy, cylindrical, but not furrowed, peduncles. Calyx of 5 greenish-yellow, ovate,

concave, spreading, somewhat villous sepals. Petals 5, bright, glistening yellow, obtuse, generally notched at the summit, and at the base a small nectary or pore covered by a scale. Stamens very numerous, inserted upon the receptacle, with short filaments, and oblong, inclining, yellow anthers. Carpels numerous, each terminated by a very short, simple style, and small stigma. Fruit consists of several smooth, lenticular, 1-celled achenes collected into a head, and each tipped with a small mucro or point. (Plate XIV., fig. 4: (a) the calyx, stamens, and pistils; (b) petal; (c) achene, magnified; (d) seed, magnified.)

Distribution.—Europe (Arctic), Northern Asia. Introduced in America. Abundant in meadows and pastures in this country. Flowers April to September.

Etymology.—The generic name is derived from *rana*, a frog, because many of the species delight in damp situations where frogs abound; hence, also, the French provincial name, Grenouillette. This species is, in rustic phraseology, ranked with the bulbous Crowfoot (*Ranunculus bulbosus*), and the creeping Crowfoot (*Ranunculus repens*), under the several names of Butter-flower, Butter-cups, King-cups, and Gold-cups:

"Let weeds instead of *butter-flowers* appear,
And meads, instead of daisies, hemlock bear."

GAY.

They are the "cuckoo-buds of yellow hue" in Shakspeare's immortal verse; and some have thought them referred to rather than the plant now called Cuckoo-flower (*Cardamine pratensis*), when we read—

"Nettles, *cuckoo-flowers*,
Darnell, and all the idle weeds."

A variety with double flowers is cultivated in gardens under the name of Bachelor's-button, or, as the French term it, *Bouton-d'or*.

Properties and Uses.—Although acidity is a prominent characteristic in this plant and its congeners, it is of so volatile a nature that, as Krapf observes, simple drying, in-

fusion in water, or boiling, are sufficient to dissipate it. Hence we are not surprised to find that the peasantry of some countries boil the herb and eat it with impunity. In its recent state it is so acrimonious, says Mr. Curtis, that by merely pulling up the plant and carrying it some little distance, considerable inflammation has been produced in the palm of the hand. According to Linneus, sheep and goats eat it, but other animals refuse it. The popular opinion, that the yellow colour of butter is due to this plant, needs scarcely to be refuted, as cows are never known to touch it, except when turned hungry into a meadow where it grows, and then their mouths become sore and blistered. When made into hay, it loses its acrid properties, but then it seems to be too stalky and hard to afford much nourishment.

The acrid and stimulating properties of the *Ranunculi* have been known ever since the time of Dioscorides. The leaves, applied to the surface of the skin, produce pain, redness, tumefaction, elevate the epidermis, cause a discharge of serous fluid, and even considerable ulceration. The other parts of the plant act in a similar manner. Consequently it has been used as a vesicatory in the same manner as cantharides. It has further been used in rheumatism, gout, and in intermittent fever. For this last it has been applied in the form of a cataplasm over the region of the stomach, or to the wrists. One of the most remarkable cases is that related by Sennert, of an obstinate quartan fever, accompanied with great pain in the shoulders, which disappeared by the application of the meadow Crowfoot to the wrists, before the access. Van Swieten speaks of a man who several times warded off an intermittent fever by merely applying the plant, reduced to a pulp, upon the fingers.

The internal use of the plant has been much less common, its corrosive and deleterious character being against it. It has, however, been employed in paralysis, commencing with very small doses, gradually augmented for fear of accident.

With regard to its poisonous properties, Orfila describes the effect of introducing five ounces of the juice into the stomach of a small robust dog, the œsophagus being first tied; and

having applied two drachms of the watery extract of the same plant to the cellular tissue of the internal part of the thigh of another strong dog: both animals died at the end of twelve and fourteen hours, without exhibiting any other phenomenon but extreme dejection. The lungs of both were engorged, reddish, and covered with several livid spots. In the first, the internal membrane of the stomach presented several spots of a bright red colour; and the limb operated on in the second animal was enormously swollen and very much inflamed. From these experiments he concludes that the plant acts by producing great local irritation, followed by inflammation of the parts to which it is applied, and that death takes place from the sympathetic action of the nervous system. Krapf found, by experiments on himself, that two drops of the expressed juice of this plant produced burning pain and spasms in the gullet, and griping in the lower belly. A single flower, well pounded, had the same effect. On chewing the thickest and most succulent of the leaves, the salivary glands were strongly stimulated, his tongue was inflamed and excoriated, his teeth were set on edge and affected with shooting pains, and the gums became tender and bloody.

LVII.

CARDAMINE PRATENSIS, L.

CUCKOO-FLOWER, OR LADIES-SMOCK.

Nat. Ord. CRUCIFERÆ.*F.* CARDAMINE, CRESSON DES PRÉS. *G.* WIESEN-KRESSE, WIESEN-SCHAUMKRAUT.

Description.—Rootstock perennial, whitish, firm, branched, with long, cylindrical fibres. Stem upright, cylindrical, generally simple, smooth, about a foot high. Leaves alternate, pinnate; radical ones composed of from 5 to 9 roundish, angular leaflets, gradually larger towards the summit; leaflets of the cauline leaves more numerous, straight, entire, lanceo-

late, the uppermost even linear, terminal one largest. Flowers terminate the stem in loose, raceme-like corymbs. Calyx of 4 oblong, obtuse, concave, deciduous, slightly spreading sepals, 2 of them protuberant at the base. Petals 4, much larger than the calyx, cruciform, nearly round, with a small tooth on each claw, marked with white, bluish, or pale purple veins. Stamens tetradynamous, inserted on the receptacle, the 2 shorter filaments with a nectareous gland at the base, and 1 between each pair of longer filaments and the calyx; anthers small, oblong, arcuate, acute, and erect. Ovary superior, cylindrical, linear, smooth, supporting a small, nearly sessile, obtuse, capitate stigma. Fruit a silicle, or elongated pod, linear, compressed, with 2 valves, which roll back in a spiral manner from the base to the summit; and divided by a dissepiment into 2 cells, containing numerous, rounded seeds, attached alternately to the placenta in a single row, by very short and slender stalks or funicles. (Plate XVII., fig. 3: (a) calyx, stamens, and pistil, somewhat magnified; (b) silique, or fruit, of the natural size; (c) the same, showing its mode of dehiscence.)

Distribution.—Northern temperate, arctic and sub-arctic regions. Abundant in moist meadows and marshes in this country. Flowers April to June.

Etymology.—The generic name is derived from *καρδια*, the heart, and *δαμαω*, to fortify, from the supposed stomachic qualities of the plant; or from *καρδαμον*, cress, because of its alliance with the cresses. This species was named Lady's-smock, in honour of the Virgin Mary, as it first comes into flower about Lady-day:—

"Lady-smocks all silver white,
Do paint the meadows with delight."

SHAKESPEARE.

"Bright crown-imperial, king's-spear, hollyhocks,
Sweet Venus-navel, and soft Lady-smocks."—

BEN JONSON.

And as it bears the cuckoo company during his short sojourn, it has received the name of Cuckoo-flower. It is sometimes called Meadow-cress. The German name *Wiesen-schaumkraut*, of the meadows, is very poetical.

Properties and Uses.—Goats and sheep are fond of the herbage, cows dislike it, and horses and swine invariably refuse it. Bees frequent the flowers. This plant was formerly used as a salad in the same manner as water-cress, to which in its sensible qualities it bears a great resemblance, corresponding with the general character of the order *Cruciferae* in the possession of antiscorbutic and stimulant qualities combined with an acrid flavour. It has scarcely any odour; the taste is rather bitter and slightly acrid, and the stems possess these qualities in a greater degree than the leaves and flowers. The plant has often been confounded with the water-cress, to which its leaves both in form and in sensible qualities bear no slight resemblance. It was formerly reckoned slightly excitant, and antiscorbutic, and was sometimes employed as a diuretic. Sir George Baker first brought the flowers of the plant into notice, as an antispasmodic, and on his authority they were admitted into the British Pharmacopœias. He relates 5 cases, viz., 2 of "St. Vitus' dance," 1 of spasmodic asthma, an hemiplegia accompanied with convulsions on the palsied side, and a case of remarkable spasmodic affection of the lower limbs. The first 2 were cured in less than a month; the 2 following were also removed; but in the last case, the patient, after experiencing some relief, was seized with a fever which proved fatal. In a subsequent edition of his work he says, "Since the first edition of this volume, I have seen several instances of the good effects of the flowers in convulsive disorders." They have also been recommended in convulsions, gout, etc.

In Cornwall, the flowering tops have been employed for the cure of epilepsy, for several generations. In some northern counties they pound the whole plant, and express the juice, which they esteem an excellent remedy in scorbutic diseases and obstructions of the liver, spleen, or mesenteric glands; also in jaundice, dropsy, and diseases of the urinary organs.

LVIII.

CUMINUM CYMINUM, L. CUMIN.

*Nat. Ord. UMBELLIFERÆ.**F. CUMIN, CUMIN DES PRÉS. G. KÜMMEI, RÖMISCHER KÜMMEI.*

Description.—Roots annual, slender, elongated, nearly simple, fibrous and whitish. Stems erect, sometimes procumbent, glabrous, branched, striated, about 8 inches high. Leaves alternate, distant, long, narrow, very smooth, slender, and divided into segments which are nearly capillary, bifid, or more frequently trifid. Flowers small, in a general umbel of about 4 rays, each supporting umbellules of a like number; involucre bifid or trifid, with capillary segments. Calyx an indistinct 5-toothed rim. Corolla of 5 obcordate, inflexed, emarginate petals, white or purplish. Filaments furnished with simple anthers. Ovary inferior, large, ovate, terminated by two minute styles and simple stigmas. Fruit ovate, prismatic, smooth or somewhat hairy, bladdery, with seven ribs and bearded intervals; the seeds are flat on the inner side, convex on the outer. (Plate XII., fig. 3: (a) entire floret, magnified; (b) fruit, magnified.)

Distribution.—Indigenous to the upper regions of the Nile, but cultivated at an early period in Arabia, India, and China, as well as in the countries on the coast of the Mediterranean. In Morocco, Sicily, and Malta it is cultivated rather extensively, and large quantities are brought from these countries to England. Flowers June and July.

Etymology.—The generic appellation is supposed to be derived from *kemum*, the Arabic name for the plant. There can be little doubt that this plant is the *κuminum* of the Greek writers, not however the *κuminum αγριον* of Dioscorides.

Properties and Uses.—Cumin seeds are used as a condiment in several ways. In Holland and Switzerland they are used to flavour cheese, but the taste and smell thus imparted is to some persons very disagreeable. In some parts of Germany they are put into bread, it is said, to render it more

wholesome. Partridges and pigeons are excessively fond of the seeds, hence they are used as a bait for those birds.

The seeds exhale a very strong, aromatic, and heavy odour; the taste is penetrating, rather bitter and unpleasant. By infusion in water the greater part of their odour is extracted, but very little of the taste; in distillation, a strong pungent essential oil arises, smelling powerfully of the seeds. They were ranked by the ancient pharmacologists among the four greater warm seeds, and they are reckoned superior to those of fennel and caraway. They are tonic and stimulant, and have been celebrated by different authors as stomachic, carminative, diuretic, sudorific and emmenagogue, and recommended internally for flatulence, windy colic, vertigo, etc.

Cumin has been administered internally in the form of infusion, powder, or volatile oil; and externally as a liniment, or, combined with other substances, as a plaster. At the present time it is largely used in veterinary practice, as well as in curry powder.

LIX.

RIBES NIGRUM, L. BLACK CURRANT.

Nat. Ord. SAXIFRAGEÆ.

F. CASSIS, GEOSEILLE NOIRE. *G.* SCHWARZE JOHANNESBEERE.

Description.—A deciduous shrub, 5 to 7 feet high; bark of old wood dark brown, younger branches of a lighter hue. Leaves much veined, irregularly serrated, bright green above, paler beneath, and sprinkled with numerous yellow glands secreting an odorous fluid; petioles tapering, about the length of the leaves, furrowed above, slightly pubescent. Flowers in racemes springing from the axils of the leaves of the young branches, pendulous, somewhat pubescent, with slender alternate pedicels, each of which is furnished with a small obovate ciliated bract. Calyx tubular, divided at the rim into 5 ovate, pale yellowish green, spreading segments. Corolla of 5 small

erect petals, light green, inserted into the throat of the calyx. Stamens 5, inserted alternately with the petals; filaments short, straight, tapering; anthers compressed, 2-lobed. Ovary roundish, 1-celled; surmounted by a cloven style, with a small obtuse stigma. Fruit a globose berry, crowned with the remains of the flower, black, shining, sprinkled with yellowish dots, 1-celled, and filled with pulp. Seeds numerous, suspended among the pulp by long filiform cords, attached to 2 lateral receptacles; testa externally gelatinous, adhering firmly to the horny albumen. (Plate XV., fig. 2: (a) the flower, opened to show the stamens; (b) a single stamen and petal; (c) the ovary; (d) the ripe fruit.)

Distribution.—Europe, Siberia, Dahuria, Western Himalaya. It grows in this country in woods, from Mid Scotland southward, but is considered more in the light of a garden escape than an indigenous plant. Flowers April and May.

Etymology.—The term *Ribes* was applied by the Arabian physicians to an acid plant supposed to be a species of rhubarb (*Rheum ribes*), but Bauhin, who imagined it to be the gooseberry, denominated that shrub *Ribes acidum*. The fruit of the Black Currant is sometimes called by the peasantry *quinsy berry*, on account of its medicinal properties. Currants were originally called *corinths*, from their resemblance to the small dried grapes brought from that city.

“Now will the *corinths*, now the rasps supply
Delicious draughts.”

PHILIPS.

Properties and Uses.—The fruit of the Black Currant, though disagreeable to many persons in its recent state, is much used as a fruit; in forming a pleasant and wholesome wine, and a grateful preserve. In Russia and Siberia a wine is made of the berries alone, or with the addition of honey; and also a distilled spirit. The leaves are used to tincture common spirits so as to resemble brandy. The young leaves, fresh gathered and infused for a moment in hot water and then dried, have been recommended as a substitute for tea.

The odour of the berries is peculiar and fragrant, and has been compared to that of the bird-cherry (*Prunus Padus*) or

of savin (*Juniperus Sabina*); the taste is acidulous and sweetish. The leaves have also a strong scent, which exudes from the glands occurring on their under surface. The fruit is considered refrigerent, aperient, stomachic, and anodyne. The jelly prepared from it has been used from time immemorial as a popular remedy in sore-throat and quinsy. Dale speaks of its efficacy in these diseases, and Sir George Baker considers it an invaluable remedy. A decoction of the leaves or bark has been used as a gargle for the same purpose. The leaves have been celebrated for their diuretic and detergent properties.

The Red Currant is equally well-known with the foregoing, and the fruit is considered nutritive, refrigerant and laxative. The juice, diluted with water and sweetened with sugar or honey, forms a very agreeable drink in hot weather, and very proper for assuaging thirst both in health and disease. Its different preparations have been used with advantage in bilious, nervous, and putrid fevers, likewise in small-pox, measles, chronic diseases of the skin, and scorbutic affections. An infusion of the young roots has been used in eruptive fevers.

LX.

BELLIS PERENNIS, L. DAISY.

Nat. Ord. COMPOSITÆ.

F. MARGUERITE, PAQUERETTE. G. GÄNSEBLÜMCHEN,
MARGARETHENBLUME.

Description.—Root perennial, creeping, truncate at the end, with numerous fibres. Leaves numerous, radical, prostrate, obovate, spatulate, slightly hairy, crenate at the margin. Scapes round, hairy, tinged with pink, 2 to 4 inches high, each supporting a single flower. Involucre hemispherical, simple, composed of several lanceolate equal scales, in 2 rows. Receptacle conical, naked, dotted. Florets of the ray pistilliferous,

ligulate, slightly notched, white, tipped with crimson; those of the disk numerous, perfect, tubular, 5-toothed, yellow; filaments hair-like, very short; anthers notched, cohering into a cylinder. Ovary inferior, obovate, with a filiform style, and bifid, crescent-shaped stigma. Fruit a small, obovate, compressed pericarp, destitute of pappus, and containing a single, erect seed. (Plate XV., fig. 3: (a) floret of the ray; (b) floret of the disk magnified; (c) the anthers forming a tube round the style, magnified.)

Distribution.—Europe. Pastures and meadows in this country. Flowers nearly all the year round.

“It smiles upon the lap of May,
To sultry August spreads its charms.
Meets cold October on his way,
And twines December’s arms.”

MONTGOMERY.

Shelley, in his exquisite dream of spring-flowers, introduces—

“Daisies, those pearled Arcturi of the earth,
The constellated flower that never sets!”

Etymology.—The generic name is derived from the Latin *bellus*, pretty. The bold and cheerful manner in which its flowers expand to the light of day, and their habit of closing at night and against rain, suggested the name of daisy, or, as Ben Jonson calls it, *day’s-eye*. Chaucer gave it the same designation; speaking of “Aprilis and his plesant showres,” he says—

“Of whose invencion lovirs may be glade,
For they bring in the Kalendis of Maie,
And they with countenance demure, meke,
Owe worship to the lusty flowres alwaie.
And in special, one called *eye of the daie*,
The daisie, or flowir white and rede.”

His affection for this flower manifests itself in many parts of his poems, and he describes in beautiful language its habit of closing at night and opening in the morning. Thus, in the “Legende of Goode Women”:—

"Of all the floures in the mede
 Than love I most these flowres white and rede,
 Such that men call Daisies in our toun,
 To them I have so great affectioun,
 As I sayd erst whan comen is the Maie,
 That in my bedde there daweth me no daie,
 Than I n'am up and walking in the mede
 To see this floure agenst the sunne sprede,
 Whan it upriseth early by the morrow,
 That blissful sight softeneth all my sorrow.

* * * * *
 As soon as ever the sunne ginneth west
 Go seen this floure how it will goe to rest,
 For fear of night, so hateth she darknesse,
 Her chere is plainly spred in the brightnesse
 Of the sunne, and there it will uncloze.

* * * * *
 And leaning on my elbow and my side,
 The longe day I shope me to abide,
 For nothing else, and I shall not lie
 But for to look upon the daisie ;
 That well by reason, men it call may
 The daisie, or else the eye of the daie,
 The Emprise and floure of floures all
 I pray to God that faire mote she fall,
 And all that loven floures for her sake."

Properties and Uses.—The leaves of the daisy, though somewhat acrid, have been eaten as a spring salad, or boiled like spinach. A decoction of the root in milk has been given to young puppies to obstruct their growth.

The leaves and flowers, which are the parts that have been employed medicinally, have a sharp and somewhat astringent taste, but no smell. Geoffroy states, that they yield by analysis a considerable portion of oil and ammoniacal salt. The sensible qualities of the root, however, are far more powerful. According to Lewis, "it has a subtle penetrating pungency, which is not dissipated by drying, is dissolved both by water and spirit, and on inspissating the solution is left in great part behind in both the extracts." He compares it to *contrayerva*, and adds, "though at present disregarded, it promises to become a medicine of no small virtue." The ancient physicians were very lavish in its praise, and for its supposed vulnerary properties it received the Pharmacopœial name of *consolida minima*.

Fabricius and Ettmuller speak of its efficacy in promoting the absorption of extravasated blood, whether from wounds, contusions, or any other cause. It was also prescribed in lung diseases, liver complaints, agues, dropsy, asthma and scrofulous diseases. The expressed juice, or a decoction of the leaves and flowers, was usually given internally, and the bruised herb, either alone or mixed with lard, was applied externally.

"The juice of the leaves and roots," says Gerard, "snift vp into the nosthrils purgeth the head mightily of foule and filthy humors and helpeth the megrim. . . . The leaves, stamped, take away bruises and swellings; whereupon it was called in old time Bruisewort."—*Lib. cit.* p. 637.

The plant occupied a place, until a comparatively recent date, in some of the continental pharmacopœias.

LXI.

TARAXACUM OFFICINALE, Wiggers. DANDELION.

Nat. Ord. COMPOSITÆ.

F. PISSENLIT. *G.* LÖWENZAHN, KUHBLUME.

Description.—Root perennial, fusiform, fleshy, whitish ash-colour within, brown externally, with numerous spreading fibres. Leaves all radical, spreading, smooth, runcinate; lobes acute, unequal, toothed, pointing downwards. Several scapes arise from the same root; they are erect, cylindrical, smooth, brittle, tubular, and crowned with a single capitulum, or head of flowers. Involucre imbricated, oblong, consisting of 2 rows of scales; the inner nearly equal, linear, and parallel; the outer shorter, paler green, flaccid, and reflexed. Florets very numerous, equal, perfect, ligulate, truncate, 5-toothed, bright yellow externally, inclining to purplish beneath. Filaments capillary and short, anthers united into a cylinder. Ovary obovate, furrowed, surmounted by a slender style longer than the stamens, and terminated by revolute yellow stigmas. Receptacle convex, naked and dotted. Fruit a small dry

oblong pericarp, supporting the pappus—a long, simple column, crowned with radiating silky hairs. Seed solitary and erect, without albumen. (Plate XVI, fig. 2: (a) a single floret; (b) the pericarp (commonly called seed), crowned with the pappus or down.)

Distribution.—Arctic and northern and southern temperate regions, extending throughout Europe, Central and Northern Asia, and North America. Common in this country in fields and waste places. Flowers March to October. The plant varies much in form, several of which have been regarded as distinct species.

Etymology.—The old generic name, *Leontodon*, is derived from *λεων*, a lion, and *οδους*, a tooth, from the tooth-like margins of the leaves; hence also the old specific name *Dens-leonis*, and the French *Dent-de-lion*, of which the English Dandelion is a corruption. *Taraxacum* is said to be an Arabian alteration of *τροξιμον*, edible; a name given also to the wild succory (*Cichorium Intybus*). The term *Caput monachi*, or Monk's-head, was probably suggested by the bald appearance of the receptacle after flowering. The vulgar name by which it is familiar to children, the French Pissenlit, and equivalent synonymes in other languages, indicate the long and general acquaintance of the people with its diuretic qualities.

The flowers of the Dandelion are very sensible to atmospheric changes, regularly opening in the morning in fine weather, and closing in rainy weather and at night. When the sun's rays first touch them on a summer morning this sensibility is rendered very obvious in the motion of the florets.

This plant is greedily devoured by hogs; it is relished also by goats, but sheep and cows dislike it, and horses invariably refuse it. Many small birds live on the seeds.

Properties and Uses.—In spring, when the leaves are tender and nearly white, they are used as a salad in many parts of the continent, and occasionally by the poorer classes in this country. In France the blanched leaves are eaten with bread and butter. The root, dried and roasted, has been proposed as a substitute for coffee, for which purpose it is quite as

well adapted as succory. Murray states that a decoction of it is used by the poor of Göttingen, who find it to resemble coffee in no slight degree. The roots are also eaten raw as a salad, and are boiled by the Germans like salsafy and scorzonera.

The leaves and stem, but particularly the root, abound in a milky juice, which is inodorous and slightly bitter, accompanied with a sweetish saline taste.

"In England *Taraxacum* root is considered to be in perfection for extract in the month of November, the juice at that period affording an ampler and better product than at any other. Bentley contends that it is more bitter in March, and most of all in July, and that at the former period at least it should be preferred."—*Pharmacographia*, p. 352.

Although this plant cannot be fully identified with the descriptions by which it is supposed to be indicated by the classical authors of Greece and Italy, it is evidently referred to in the works of the Arabian physicians as *Tarakshagūn*. Avicenna, in the 11th century, mentions it under the name of *tarazacon*. Tragus speaks of its virtues in burning fevers, and Gerard recommends it in jaundice. Parkinson writes "Who so is macilent, drawing towards a consumption, or ready to fall into a cachexy, for the use hereof for some time together, shall find a wonderful help." Many of the old physicians recommend it in liver complaints, intermittent fevers, scorbutic, and chest diseases. Dandelion is still highly valued as a mild laxative and tonic medicine, and is employed especially in hepatic disorders. It is frequently used in the form of extract.

The roots, as collected, are frequently adulterated with those of the common hawkbit (*Leontodon hispidus*), which are, however, more tough and not so easily broken as the true Dandelion; they, moreover, seldom exude any milky juice.

LXII.

LOLIUM TEMULENTUM, L. BEARDED DARNEL.

Nat. Ord. GRAMINEÆ.*F. IVRAIE. G. TAUMEL LOLCH, TRESPE.*

Description.—Root annual, tortuous, fibrous. Stem erect, cylindrical, striated, rough towards the summit, about 3 feet high, clothed at the joints with long, flat, pale green, acuminate leaves, rough on the upper surface; ligula short, obtuse, slightly notched at the end. Inflorescence an erect spike, 4 to 6 inches long, with numerous sessile spikelets arranged alternately in two rows along the common axis or rachis, which is flexuous, rough, and channelled; each spikelet contains about 7 flowers. Glume lanceolate, solitary, at the base of the spikelets, and rather exceeding them in length. Paleæ of 2 unequal valves, the exterior of which is acute, membranous at the edge, cleft at the point, and keeled, sending forth a long, rigid awn below the extremity; within these a minute elliptical scale is occasionally found. Stamens 3, with capillary filaments shorter than the paleæ, and oblong versatile anthers, notched at each extremity. Ovary turbinate, surmounted by 2 very short styles, terminated by feathery stigmas. Fruit membranous, elliptical, compressed, convex on one side, attached to the inner valve of the paleæ, and scarcely distinguishable from the seed. (Plate XV., fig. 4: (a) glume; (b) paleæ and stamens; (c) ovary and styles.)

Distribution.—Europe, Northern Africa, Western Siberia, India. Introduced in North America. A common weed in corn-fields in many parts of England. Flowers June to August.

“He was met ev’n now
Crowned with rank fumiter and furrow weeds,
Darnel, and all the idle weeds that grow
In our sustaining corn.”

SHAKESPEARE.

Etymology.—The term *Lolium* has been thought by some to be derived from λαῖον ὀλεῖν, to ruin the corn; by others, from

δολιός, counterfeit, in conformity with an opinion entertained by the ancients, and not yet exploded in every country, that the plant is merely wheat, or some other grain in a degenerate state. This doctrine of the transmigration of vegetables was carried to an extravagant height: it was believed that circumstances being unfavourable, wheat would change into rye, rye into barley, barley into darnel, darnel into brome-grass, brome-grass into oats, and so on; and that in favourable soils and situations these transmutations would be reversed.

From *Lolium*, perhaps, originated the term Lollard, applied by their enemies to the Waldenses in Germany, and the followers of Wickliffe in this country; to indicate that they were pernicious weeds in Christ's vineyard, choking and destroying the pure wheat of the gospel. Milne, in his *Indigenous Botany*, thinks the expression ζιζανία which occurs in the 13th chapter of St. Matthew's gospel would have been better translated *darnel* than *tares*. The French call it Ivraie, from *ivresse*, drunkenness; hence, probably, the English Ray-grass; in both languages, however, Ivraie and Ray-grass are applied indiscriminately to the different species of *Lolium*.

The bearded Darnel, also called Cheat in some provincial dialects, is the only deleterious individual in the whole family of the grasses. It must not, however, be confounded with the perennial Darnel, or Rye-grass (*Lolium perenne*), which is often employed with clover for artificial pasture and hay, and is much esteemed by the agriculturist.

Properties and Uses.—The seeds are reported to be eaten with impunity by hogs, and though fatal to geese, to be useful food for fattening chickens. According to Linneus, the herb is sometimes eaten by sheep. Its poisonous effects on dogs are thus noticed by Seeger. He gave three ounces of a decoction of the flour to a dog; in five hours he was seized with a general trembling, incapacity to walk, and difficulty of breathing; four hours subsequently, he fell into a profound sleep and became insensible, but the next day he was nearly recovered. In other of these animals submitted to experiment, it caused vomitings, convulsions, and an abundant excretion of urine and perspiration. It is said to prove fatal to horses.

Theophrastus, Dioscorides, Aristotle, Pliny, and most of the sages and poets of antiquity, were acquainted with the poisonous effects of this plant on the human frame. The most prevalent opinion was that it caused blindness: hence, with the Romans, *lobio victitare*, to live on Darnel, was often applied to a dim-sighted person.

Gerard says, "The new bread wherein darnel is, eaten hot causeth drunkenness;" and Linneus, referring to this property, states that the greater part of its virulence is destroyed in stale bread, but when fermented in beer, it retains its stupefying qualities. Seeger relates that five persons, having eaten about five pounds of oaten bread which contained Darnel, were attacked in two hours with frontal headache, vertigo, drowsiness, pain in the stomach, and great trembling of the tongue; deglutition and pronunciation were also much impeded. There was also vomiting attended with great effort, extreme lassitude, cold sweats, and violent tremors over the whole body. In other cases paralysis, delirium, and death itself have occurred. The deleterious effects of this grain on a family who partook of it mixed with wheaten bread, are reported in the *London Medical and Physical Journal* for 1799. In addition to the symptoms already described, these persons experienced great pain and tightness of the calves of the legs, and in one of them who partook of the bread when new, and again subsequently, and who was not seized with vomiting, the pain and inflammation were succeeded by gangrene, and he was compelled to undergo the amputation of both legs. De Candolle thinks that its pernicious effects have been much exaggerated, and he asserts that, in times of scarcity, numerous individuals have eaten it without inconvenience.

Darnel was once used medicinally, though now generally abandoned. It was recommended by Aretæus in pleurisy, and by others of the ancients in gout, diarrhœa, and profuse menstruation. As a topical application, it was considered deterative and resolvent. According to Boerhaave, it resists putrefaction if applied externally; and, from its cleansing qualities, proves highly efficacious in disorders of the skin.

LXIII.

ANETHUM GRAVEOLENS, L. DILL.

Nat. Ord. UMBELLIFERÆ.

F. ANETH. G. DILLE.

Description.—Root annual, fusiform, whitish, and fibrous. Stems cylindrical, glabrous, striated, the striæ alternately white and reddish, somewhat branched, leafy, 1 to 1½ feet high. Leaves alternate, glaucous green, twice or thrice pinnate, with slender acute segments, and broad membranous sheathing foot-stalks. Flowers in broad, flat, terminal umbels, destitute both of general and partial involucre. Calyx an obsolete margin. Petals 5, bright yellow, ovate, equal, concave, with a broad retuse inflexed point. Stamens 5, spreading, incurved, longer than the petals, yellow, with roundish anthers. Ovary inferior, ovate, crowned by the disk, and terminated by 2 short recurved styles with simple stigmas. Fruit elliptical, compressed, divided into 2 carpels, flat on the inner side, convex on the outer, marked with 5 ridges, the lateral ones indistinct, and margined with a pale yellow membranous expansion. (Plate XVI, fig. 1: (a) flower magnified; (b) the ovary and styles; (c) the fruit.)

Distribution.—Mediterranean region, Southern Russia and Caucasian provinces. Largely grown in various parts of the East Indies, where it is known under the name of Sôyah, and has been considered by some authors as a distinct species, and described as *Anethum Sowa*. It is found as a corn-field weed in many parts of the world, and was introduced into this country about the year 1570, and is occasionally cultivated for its fruit. Flowers June and July.

Etymology.—The generic name is thought to be derived from *αἶθερ*, to burn, in allusion to the pungency of the seeds. Some etymologists prefer to consider *ανηθον* a radical term bestowed by the Greeks on the plant; whence the Latin *Anethum* and other synonyms. Dill is a modern form of the Saxon *dile*. According to Prior, the name is derived "from

the old Norse word *dilla*, to lull, in allusion to the reputed carminative properties of the drug. However this may be, we find the word occurring in the 10th century, in the vocabulary of Ælfrie, Archbishop of Canterbury. The words *dill* and *till*, undoubtedly meaning this drug, were also used in Germany and Switzerland as early as A.D. 1000."—*Pharmacographia*, p. 292.

Properties and Uses.—The plant is grown in gardens in this country and on the Continent for culinary purposes, but to nothing like the extent it is in India. The leaves, flowers, and fruits are said to afford a useful condiment for various kinds of food. The latter are used for flavouring pickles.

The odour of the recent herb is aromatic, and not unpleasant, but when bruised it is heavy and disagreeable: the taste is sweetish, subacid, and aromatic. The fruits have a more aromatic odour, and a warm pungent taste, and yield the whole of their virtues to rectified spirit. Dill was held in high estimation by Dioscorides, who recommends it for augmenting the milk of nurses and to appease windy colic; he also mentions an oil prepared from the flowers as efficacious in cutting short the cold fit of intermittent fevers, and in easing sciatic and rheumatic pains.

At the present time a water distilled from the fruits is most frequently used, particularly for infants, and is considered stimulant and carminative. It is also employed as a vehicle for more active medicines.

LXIV.

CUSCUTA EUROPÆA, L. GREATER DODDER.

Nat. Ord. CONVULVULACEÆ.*F.* CUSCUTE, GOUTTE DU LIN. *G.* FLACHSSEIDE, FILZKRAUT.

Description.—An annual parasite with a fibrous root when it first springs from the seed, but which soon perishes and leaves the plant to provide for itself. Stems leafless and herbaceous,

twining around flax, nettles, hemp, tares, hops, broom, etc., in a direction contrary to the sun's apparent motion, sending out from their under surface small tubercles and papillæ, which insinuate themselves into the bark of the supporting plant and extract its vital juices. Flowers nearly sessile, pale yellowish rose, collected into globose clusters. Calyx inferior, persistent, with 4, sometimes 5, segments. Corolla urceolate; limb regular, divided into 4 or 5 deep, spreading segments. Stamens equal in number to the segments of the corolla, with erect subulate filaments, and roundish 2-celled anthers. Ovary 2-celled, surmounted by 2 short spreading styles with simple stigmas. Fruit an elliptical capsule, 2-celled, bursting transversely all round at the base; cells usually 2-seeded. Seeds contain a spiral acotyledonous embryo in the midst of fleshy albumen. (Plate XVI., fig. 3: (*a*) the extremity of the young shoot; (*b*) a flower magnified; (*c*) the same opened to show the stamens; (*d*) the pistil; (*e*) the fruit; (*f*) the same cut transversely to show the 2 cells, each containing 2 seeds; (*g*) the seed, isolated.)

Distribution.—Europe, Northern Africa, Siberia. Found in several parts of England, though not very frequent. Flowers August and September.

Etymology.—The term *Cuscuta*, an alteration of *Cassutha*, was derived from the Greek *κασσυθα*, either from *κασσωω*, to sew together, or from the Arabic name of the plant, *Kessuth* or *Chessuth*. Some of the ancients called it *Podagra lini*, the gout of flax; hence the French *Goutte du lin*. Skinner supposes *Dodder* to have been formed from the Dutch *touteren*, to shoot up. It has also received the vulgar, though expressive, names of *Hell-weed* and *Devil's-guts*.

Properties and Uses.—The herb is inodorous and of a slightly bitter, astringent, and acrid taste. Its sensible qualities, however, are said to vary according to the plant on which it grows. The lesser *Dodder* has nearly the same properties, conjoined with a pungent aroma. Though highly extolled by the ancients, this plant is now considered of no value as a medicine. It was thought to be detergent, incisive, aperient, and deobstruent, modified, however, by the nature of its foster-

parent. Thus, when growing on flax, it was regarded as mucilaginous; on broom and nettle, as diuretic; on madder and bramble, as astringent. Hippocrates employed it in phthisis, and Galen, Aetius, and Oribasius in a troop of diseases confounded under the vague name of difficulty of breathing.

It was given in substance, in vinous infusions or aqueous decoctions, or mixed with honey, but authors were as little agreed upon the proper dose as they were respecting the properties of the herb; Geoffroy, for instance, prescribes one, two, or three handfuls. There is this advantage, that an overdose can do no harm.

There is another British species, the lesser Dodder (*Cuscuta Epithymum*), which is smaller than the foregoing, especially in the flowers, which are usually four-cleft, and have a small fringed scale at the base of each stamen. It is generally found on thyme, heath, or furze. Dodder is eaten by cows, sheep, and hogs, but disliked by goats and horses.

LXV.

SPIRÆA FILIPENDULA, L. DROPWORT.

Nat. Ord. ROSACEÆ.

F. FILIPENDULE. G. KNOLLENTREAGENDES MÄDESÜSS.

Description.—Rootstock, perennial, cylindrical, branched, and tuberous; tubers solid oval, connected by solitary fibres, externally dark brown, internally whitish. Stem erect, simple, grooved, smooth, 2 to 3 feet high. Leaves chiefly radical, spreading, alternate, interruptedly pinnate, bright green above, glaucous beneath; pinnæ opposite, sessile, lanceolate, deeply cut, and serrated; alternate pairs much smaller, but each set uniform; petiole channelled above, at its base 2 amplexicaul stipulæ. Flowers in a paniculate corymb at the top of the stem. Calyx monophyllous, inferior, 5-cleft, striated, and persistent. Corolla of 5 obovate, spreading petals, yellowish white, tipped with rose colour. Stamens numerous, with

setaceous filaments, nearly as long as the petals, inserted into the calyx; anthers 2-lobed. Ovaries 5 or more, superior, ovate, pilose, each surmounted by a white, reflexed style, terminated by a capitate, compressed, truncated stigma. Capsules equal in number to the ovaries, elliptical, pointed, compressed, 1-celled, and 2-valved, containing a few small oblong seeds. (Plate XVII., fig. 1: (a) the calyx; (b) petal; (c) stamen; (d) pistil; (e) capsules.)

Distribution.—Europe, Northern Africa, Northern Asia. In this country it grows in open pastures, especially in chalky or gravelly soils. Flowers June and July.

Etymology.—*Spiræa* is the name given by Pliny to a plant whose blossoms were used for garlands, derived from *σπειρα* of Theophrastus. This species was named *Filipendula*, on account of its curious tubers, which are suspended, as it were, by threads; hence, also, the English name Dropwort. It is supposed to be the *Molon* of Pliny.

A variety with double flowers is cultivated in gardens. The herb is eaten by cows, sheep, goats, and swine, but refused by horses. Hogs are very fond of the roots, and are very dexterous in extirpating them from the soil.

Properties and Uses.—The tubers, taken up late in autumn, have a pleasant odour, resembling that of orange-flowers, and a sweetish agreeable taste, similar to hazel-nuts, combined with a slight bitterness. In spring they are bitter, and less fragrant. The flowers and the recent herb have a bitterish taste and an aromatic smell.

In autumn, if the recent tubers are scraped and well washed in cold water, they afford a fragrant, dark red tincture, which, left to itself, soon deposits a white, friable, amylaceous fecula. This fecula, or starch, is possessed of nutritive qualities. According to Linneus, the tubers have been used for food in times of scarcity. The dried herb has been used in tanning leather. The dried tubers are rather bitter and astringent.

The plant was esteemed by the ancients as incisive, diuretic, and lithontriptic, many of the old authors writing in praise of it. It was employed in the form of decoction, but it is not now used as a medicinal agent.

LXVI.

SAMBUCUS NIGRA, L. ELDER.

Nat. Ord. CAPRIFOLIACEÆ.*F.* SUREAU. *G.* HOLUNDER.

Description.—A small tree, 12 to 20 feet high. Trunk covered with a corky ash-coloured bark; wood even-grained and white; young branches opposite, green, fistulous, filled with a white spongy pith. Leaves opposite, petiolate, pinnated, smooth, deep green; pinnæ usually 5, ovate, lanceolate, acute, serrated, the terminal one the largest; footstalks angular, channelled. Flowers numerous, small white, or cream-coloured, in large terminal cymes, with 5 principal branches, and many secondary ones. Calyx superior, permanent, very small, 5-cleft, smooth. Corolla rotate, slightly concave, with 5 deep obtuse segments. Stamens 5, filaments subulate, about as long as the corolla, into the throat of which they are inserted; anthers yellow, cordate, 2-celled. Ovary inferior, ovate, smooth. Stigmas roundish, obtuse. Berries succulent, globose, purplish black when ripe, 1-celled, containing 3 or 4 linear-ovate, plano-convex seeds. (Plate XVII., fig. 4: (a) corolla; (b) calyx, ovary, and stigmas; (c) the fruit; (d) berry, cut transversely.)

Distribution.—Europe, Northern Africa. Frequent in hedges, woods, and coppices, in this country. Flowers in June, and ripens its berries in September.

Etymology.—Sambucus is so called from *σαμβυκη*, *sambuca*, a musical instrument, probably the sackbut, in the construction of which the wood of this tree is said to have been employed. Elder is derived from the Saxon *ellara*; it is sometimes called Boor-tree in the north.

Properties and Uses.—The wood being hard and tough is made into skewers, tops for angling-rods, and needles for weaving nets; it is also employed by turners and cabinet-makers. The branches furnish tubes for various purposes, and the light pith they contain is much used in electrical experiments, and for fancy ornaments. The leaves are said to drive

away moles if spread about their haunts. The French put layers of the flowers among apples, to which they communicate a very agreeable odour.

A well-known wine is extensively made in this country from the berries, a considerable portion of sugar and spice being employed. This wine, though made in autumn, is ready for use the following winter, and is usually taken warm. In Germany, a strong spirit is distilled from the fruit, especially after it has been sweetened by night frosts. It is said to be used, also, in the adulteration of port wine. Lastly, Dambourney observes, that linen may be dyed of a brown colour with the juice of these berries, and that wool, previously treated with bismuth, acquires a beautiful bluish-grey, which is very permanent.

According to Linneus, the leaves are refused by all animals except sheep, to which they are said to be very beneficial when affected by the disease called rot; but others assert that cows eat them eagerly. The flowers prove fatal to turkeys, and the berries are reputed to be poisonous to poultry, though eaten by many small birds.

The whole plant has an unpleasant narcotic smell, and some authors have asserted that it is dangerous to sleep under its shade. The inner bark is of a fine green colour, inodorous, sweetish to the taste at first, subsequently bitter, acrid, and nauseous. The leaves have a disagreeable odour, very fetid when bruised, and a nauseous taste. The recent flowers have a fragrant smell, which soon becomes faint and heavy; the odour of the dried flowers is rather more powerful.

By distillation in water the flowers impart their aroma and active qualities. The seeds yield by expression about an eighth part of dense, greenish oil. The berries are inodorous, acidulous, and sweetish.

If the Elder be, as is generally supposed, the *ακτὴ* of the Greeks, we find it mentioned by Dioscorides, Theophrastus, and Galen. Hippocrates used it as a purgative in dropsies and other diseases; and from his time to the present, it has enjoyed more or less celebrity. According to Dr. Ainslie, the Arabians and Syrians of the present day are well acquainted with it.

The fresh flowers were considered diaphoretic and sudorific, and have been used in bronchial and pulmonary affections, measles, scarlatina, and other eruptive diseases. The berries were considered aperient, slightly excitant, and sudorific, and have been applied in rheumatism, erysipelas, and febrile diseases.

The inner bark has been extolled as an excellent hydragogue purgative, and in small doses as a deobstruent. Sydenham and Boerhaave speak of its good effects in dropsy, and in various chronic affections. At the present time Elder flowers are employed in medicine in this country only in the preparation of an aromatic distilled water, and for imparting an agreeable odour to lard, forming an ointment known as Elder ointment. The leaves are also occasionally used for giving a green tint to oil or fat for medicinal purposes. The bark is no longer used.

"For use in pharmacy the part of the flower most desirable is the corolla, to obtain a good proportion of which the gathered cymes are left for a few hours in a large heap; the mass slightly heats, the corollas detach themselves, and are separated from the green stalk by shaking, rubbing, and sifting; they require to be then rapidly dried. This done, they become much shrivelled, and assume a dull yellow colour. When fresh they have a sweet, faint smell, which becomes stronger and somewhat different by drying, and is quite unlike the repulsive odour of the fresh leaves and bark. Dried Elder flowers have a bitterish, slightly gummy flavour. On the Continent they are sold with the stalks, *i.e.* in entire cymes."
—*Pharmacographia*, p. 298.

LXVII.

INULA HELENIUM, L. ELECAMPANE.

Nat. Ord. COMPOSITÆ.*F.* AUNÉE. *G.* ÄCHTER ALANT, BRUSTALAND.

Description.—Root perennial, thick, fleshy, branched, brown or yellowish externally, white within. Stem erect, firm, round, striated, branched, downy, 4 or 5 feet high. Radical leaves large, often a foot long, petiolate, ovate-lanceolate, toothed, wrinkled, traversed by many reticulated veins, deep green above, whitish and cottony beneath; cauline leaves smaller, more acutely pointed, sessile; both kinds alternate. Flowers large, terminal, solitary, radiated, golden yellow. Involucre of several large, ovate, imbricated, downy scales, the exterior leafy. Florets of the ray long, narrow, spreading, tricuspidate, and pistilliferous; those of the disk numerous, perfect, tubular, limb 5-cleft. Anthers united into a cylindrical tube, with 5 acute teeth above, and 10 bristles at the base. Ovary oblong; style filiform, cloven; stigma bifid, obtuse. Fruit linear, quadrangular, striated, with a simple sessile pappus. Receptacle nearly flat, naked, or slightly scaly. (Plate XVI., fig. 4: (a) floret of the centre or disk; (b) floret of the circumference or ray; (c) anthers, united into a tube; (d) summit of the style, magnified.)

Distribution.—Europe from Gothland southwards, Siberia. Introduced in North America. Copses and meadows in England, but rare and local. Flowers July and August. It was formerly cultivated as a medicinal and culinary plant in gardens, and is still grown somewhat largely in Holland, Switzerland, and some parts of England.

Etymology.—The generic name *Inula*, is said to be an alteration of *ἑλενιον* *Helenium*, which, according to the brilliant fancy of the ancients, sprang from the tears of the renowned Helen. The common name, *Elecampane*, is a corruption of the old Latin term for the plant, *Enula campana*. It is well described by Dioscorides, and some imagine that the *Panax Chironium* of Theophrastus refers to this plant.

"It is frequently mentioned in the Anglo-Saxon writings on medicine current in England prior to the Norman conquest, and was generally well known during the Middle Ages. Not only was its root much employed as a medicine, but it was also candied and eaten as a sweetmeat."—*Pharmacographia*, p. 340.

Properties and Uses.—For medicinal purposes the roots of plants two or three years old are considered best; when more advanced they become woody. The larger roots are sliced when fresh, so that the pieces shrivel up irregularly; the smaller roots are dried entire. In the dry state they are of a grey colour, brittle or horny; they have a slight aromatic odour, somewhat resembling orris and camphor, and a bitter aromatic taste.

Both alcohol and water extract its virtues, the former most completely. By chemical analysis, the root affords a volatile oil which easily concretes, extractive matter, resin, vegetable albumen, acetic acid, and principally a kind of greyish, odorous fecula, discovered by M. Rose, and named by Dr. Thomson, *inuline*, a principle which has not been discovered with certainty in plants of any other tribe. The root of Elecampane was much esteemed by our ancestors as a valuable drug. Hippocrates and Galen make favourable mention of it. Dioscorides speaks of its efficacy in sciatic affections. It has been strongly recommended in pectoral affections, particularly in coughs and asthmas; and besides promoting expectoration, it is also said to act as a sudorific and diuretic. Its diuretic properties, however, Cullen considers as trifling, and could not discover that it possessed any expectorant virtues. It was reputed a good remedy in complaints of the stomach arising from acidity; hence its value in dyspepsia and those colics so frequently originating in the acidity of that organ. Besides these diseases, it was used in paralysis, gout, rheumatism, and various other disorders, and externally in the form of an ointment or decoction in cases of itch.

As a medicine, Elecampane is now nearly or quite obsolete. It is chiefly used in veterinary practice, and in France and Switzerland is employed in the distilling of absinthe.

LXVIII.

ULMUS CAMPESTRIS, Sm.

SMALL-LEAVED ELM.

Nat. Ord. ULMACEÆ.*F. ORME. G. ULME, RÜSTER.*

Description.—A lofty tree, sending off strong, spreading, lateral branches; when young, covered with a smooth, very tough bark, becoming rugged by age; heart-wood yellowish brown. Leaves alternate, ovate, approaching to rhomboid, acuminate, rough above, downy beneath, doubly and irregularly serrated, from 1 to 3 inches long, dark green. Flowers appear before the leaves, and are produced from distinct buds, in numerous dense heads, each subtended by a small scale or bractea. Perianth (calyx) 4-cleft, persistent, fringed, light red or brownish. Stamens 4, equal, smooth, longer than the perianth, with large, roundish, purple, 2-lobed anthers. Ovary oblong, compressed, 2-celled, supporting two spreading styles, each terminated by a stigma, fringed on the upper edge, and ultimately dilated at the lower. Capsule (a samara) membranous, compressed, winged all round, indehiscent, containing a single roundish seed. (Plate XVIII., fig. 1: (a) the perianth and stamens, magnified; (b) the fruit.)

Distribution.—Middle and Southern Europe, Northern Africa, Siberia, Northern China and Japan. Woods and hedgerows in this country, but probably not truly indigenous. Flowers March to May.

Etymology and History.—The name *Ulmus* is derived from the Anglo-Saxon elm,—its exact appellation also in Teutonic, Gothic, and nearly all the Celtic dialects.

The Elm was well known to the ancients; and that it was prized for its economical uses is sufficiently obvious from the writings of Virgil and others. Dioscorides refers to the astringent properties of the bark. The Mantuan bard gives ample directions, *ulmis adjungere vites*, it being usual in those days to fasten the weak and limber vine to the sturdy elm.

Later poets have some happy allusions to this practice: thus Milton, describing the morning avocations of the dwellers in Eden:—

“They lead the vine
To wed her Elm; she spoused about him twines
Her marriageable arms, and with her brings
Her dower, th’ adopted clusters, to adorn
His barren leaves.”

Paradise Lost, b. v. l. 216.

“Thou art an Elm, my husband, I a vine,
Whose weakness married to thy stronger state,
Makes me with thy strength to communicate.”

SHAKESPEARE.

In the Teutonic mythology the Elm had the honour of being chosen for the formation of the first woman, *Emla*, elm, as the first man was *Aske*, ash. Several superstitious customs were practised by our Saxon ancestors on this tree. A canon of Edgar, in the tenth century, runs thus: “We decree that every priest shall anxiously advance Christianity, and forbid tree worship, divination with the dead, omens, charms with songs, and many other illusions which are practised in asylums on Elms, and on various other trees, by which many are perverted who ought not to be so.”

Properties and Uses.—Animals in general are very fond of the foliage, and eat it greedily. The wood is much valued; being hard and tough, it is used for making axletrees, mill-wheels, keels of boats, chairs, etc.; and being very durable in wet situations, it is preferred for coffins. It is also stained to imitate mahogany. The tree is much infested by insects. Silkworms will feed upon the leaves. Dambourney obtained from the bark a yellowish brown colour for dyeing, and De Vilette manufactured of it a kind of strong brown paper.

The bark, as used in medicine, is removed from the tree in early spring, the outer corky portion removed, and the inner portion dried. Thus prepared, it is seen in trade in flattish pieces of a rusty yellow colour, the inner surface striated. It has little or no smell, but a slightly astringent woody taste. When boiled in a small quantity of water, it forms a thick, dark brown-coloured decoction, which gelatinizes as it cools,

and when evaporated leaves a brittle semi-transparent substance, soluble in water, but insoluble in alcohol and ether, to which, however, it imparts a brownish colour. The brittle residue, when treated in the same manner as Klaproth treated the gum-like exudation from the *Ulmus nigra*, afforded nearly the same results; consequently it must be regarded as *ulmin*. The root, leaves, and bark of this tree were formerly used in medicine, on account of their astringent and detersive qualities. In more modern practice, a decoction of the inner bark has been highly recommended in some cutaneous affections allied to tetter and leprosy. Many of the old practitioners strongly recommended it for various cutaneous diseases, and also as a gargle in ulcerations of the mouth. The slimy juice which abounds in the inner bark has been recommended in affections of the kidneys, and externally as a useful application to burns.

At the present time Elm bark is considered a weak mucilaginous astringent, but it is very seldom used.

 LXIX.

ERYNGIUM MARITIMUM, L.

SEA ERYNGO, OR SEA HOLLY.

Nat. Ord. UMBELLIFERE.

F. PANICAUT. *G.* MEEERSTRANDS-MÄNNERTREU.

Description.—Rootstock perennial, long, creeping, cylindrical, whitish internally, covered with a brown epidermis. Stem cylindrical, thick, striated, branched, leafy, smooth, glaucous, 1 to 2 feet high. Radical leaves roundish-cordate, stalked, plaited; upper ones sessile, lobed, palmated, amplexicaul; the whole smooth, glaucous, ribbed, veiny, and toothed with sharp spines. Flowers in dense terminal, roundish heads. Involucre of 5 to 7 rigid bracts, longer than the heads. Bracteoles 3-cleft, spinous, equalling the flowers. Calyx with a rough, scaly tube, and a leafy, 5-lobed limb. Corollas light purplish blue, composed of 5 erect, oblong petals, in-

flexed at the points. Stamens 5, with capillary filaments tipped with roundish, oblong anthers. Ovary inferior, oblong, clothed with erect bristles, and terminated by 2 filiform, nearly erect styles, with simple stigmas. Fruit obovate, subterete, separable into 2 carpels, which are covered with chaffy scales, and destitute both of ridges and vittæ; each carpel containing an oblong, nearly cylindrical seed. (Plate XVII., fig. 2: (a) floret, magnified, showing the 3-cleft bracts, calyx, petals, and stamens; (b) a single petal; (c) the styles.)

Distribution.—Europe, Northern Africa. On sandy shores in many parts of England, Scotland, and in Ireland. Flowers July and August.

Etymology.—The term *Eryngium* was given to this genus because it was supposed to include the *ερυγγιον* of Dioscorides and the *Erynye* or *Eryngion* of Pliny; and hence the English name. This species has also been designated Sea Hulver, Sea Holm, and Sea Holly, on account of its spiny leaves.

Properties and Uses.—The roots were at one time candied and eaten as a sweetmeat, which was considered restorative and stimulant. Shakspeare makes Falstaff exclaim, "Let the sky hail kissing-comfits and snow eringoes" (*Merry Wives of Windsor*, act v. sc. 5.) These roots were first candied at Colchester, about the beginning of the seventeenth century, by Robert Burton, apothecary. Ample directions how to "condite Eringos" are given by Gerard. According to Linneus, the young shoots prepared like asparagus are grateful to the taste, and very nutritious and restorative. The roots have a sweet agreeable taste, and an aromatic odour which they yield completely to water. The bark of the root is the part that has been used in medicine. Dioscorides, with other of the ancients, considered it a valuable promoter of the menses when obstructed, and also administered it in tormina, liver complaints, and other disorders. Boerhaave esteemed it the principal of the aperient roots, and he usually prescribed it as a diuretic and antiscorbutic. It is said to have been used most effectually in affections of the chest, the candied root being given for this purpose. At the present time it is not used.

LXX.

EUPHRASIA OFFICINALIS, L. EYEBRIGHT.

Nat. Ord. SCROPHULARINEÆ.*F.* EUPHRAISE. *G.* AUGENTROST.

Description.—Root annual, twisted, dark brown, slender, with several minute, whitish fibres. Stems 3 or 4 inches high, branched from the base, purplish, occasionally simple, nearly square, slightly pubescent. Leaves small, in pairs, nearly sessile, tending upwards, somewhat concave, smooth, ovate, deeply toothed, light green, deeper at the margin, and tinged with purple; veins branching, prominent beneath. Flowers solitary and sub-sessile in the axils of the upper leaves, which they rather exceed in length. Calyx tubular, angular, pubescent, light green with purplish ribs, and divided at the margin into 4 deep, erect, nearly equal, ovate-acuminate teeth. Corolla bilabiate, white, streaked with purple, yellowish on the palate; tube cylindrical, curved; upper lip slightly concave, over-arching the stamens, bifid, with obtuse, emarginate lobes; lower lip with 3 deep, nearly equal, emarginate lobes. Stamens didynamous, with thread-shaped filaments; anthers 2-celled, purple, spurred at the base. Ovary ovate, 4-parted, rather hairy, surmounted by a filiform, downy style, and an obtuse, bifid stigma, fringed with minute glands. Capsule ovate-oblong, compressed, emarginate, 2-valved, and 2-celled, containing several whitish, striated seeds. (Plate XVIII, fig. 4: (a) the calyx; (b) the corolla seen in front; (c) the same, opened to show the stamens; (d) the fruit, enclosed in the persistent calyx.)

Distribution.—Europe (Arctic), Northern Asia, Western Asia to the Himalaya, North America. Common in meadows and heaths in this country. Flowers May to September.

Etymology and History.—The pretty aspect of the flower, gemmed as it is with a yellow eye, most probably suggested the name Eyebright, in Latin *Euphrasia*, apparently derived from the Greek *εὐφροσύνη*, which signifies joy or gladness.

Some consider that the name was given in allusion to its efficacy in diseases of the eyes, but the first writers who record its medicinal properties are Arnoldus de Villa Nova, who flourished at the beginning of the fourteenth century, and Gordon, who published his *Lilium Medicinæ* in 1305.

The older poets, who have noticed this plant, do so in allusion to the remedial powers with which in their day it was so confidently invested. Milton tells us that—

“Michael from Adam’s eyes the film removed,
Which the false fruit, that promised clearer sight,
Had bred; then purged with *euphrasy* and rue
The visual nerve, for he had much to see.”

Paradise Lost, b. xi. l. 412.

And Shenstone exclaims—

“Famed *euphrasy* may not be left unsung,
That gives dim eyes to wander leagues around.”

Properties and Uses.—The herb is almost destitute of odour, but somewhat bitter, slightly aromatic, and styptic to the taste. No plant has been more celebrated for its anti-ophthalmic virtues than this. Hildanus and Lanzonus attribute to it the restoration to sight of persons at the age of seventy or eighty years. Arnoldus, Fuchs, Camerarius, Hoffman, Lobel, Francus, and a host of others, have extolled its virtues in dimness of sight, cataract, inflammation, and other diseases of the eyes.

According to Olatsen, the expressed juice of the plant is used by the Icelanders in all affections of the eyes, and Lightfoot states that the Scotch Highlanders make an infusion of it in milk, and anoint the patient’s eyes with it by means of a feather. It has also been commended in jaundice, loss of memory, vertigo, and other similar affections. Either the expressed juice or a distilled water prepared from the plant was considered a safe collyrium. Modern authorities, however, have failed to find any real virtues in it.

LXXI.

FENICULUM VULGARE, Gaertn. FENNEL.

Nat. Ord. UMBELLIFERÆ.*F. FENOUIL. G. FENCHEL.*

Description.—Root perennial, thick, fusiform, whitish, and fibrous. Stems erect, cylindrical, striated, glaucous, branched, 3 or 4 feet high. Leaves large, twice or thrice winged, placed alternately at the joints of the stem on long amplexicaul, membranous, striated petioles; leaflets filiform, linear, pinnatifid, with awl-shaped segments, deep green. Flowers in terminal umbels, destitute both of general and partial involucre. Calyx an obsolete, tumid margin. Petals 5, regular, ovate, emarginate, with inflexed points, dark yellow. Ovary inferior, ovate-cylindrical, truncated, smooth, striated, and covered with the disk, which is a large, roundish, yellow, glutinous body, dividing into 2 parts, from each of which rises a short, thick style, terminated by an obtuse truncated stigma. Fruit consists of 2 ovate slightly compressed carpels, marked with 5 prominent keeled ridges, the lateral ones marginal and a little broader. Seeds small, ovate, nearly round, on a transverse section. (Plate XIX., fig 4: (a) entire flower magnified; (b) fruit, natural size; (c) the same separating at maturity, magnified.)

Distribution.—Southern Europe, Eastern Asia, Northern Africa. Frequent on chalky cliffs in England near the sea, and near towns at a short distance from the coast; very common in gardens. It varies much in size and appearance. Fennel is extensively cultivated in Central Europe, as Saxony, Franconia, and Wurtemberg, as well as in the South of France and in Italy, and also in India and China. Flowers July and August.

Etymology.—It is the *μαραθρον* of the Greeks, and the *Fœniculum* of the Romans, from *fœnum*, hay, the smell of the dried plant resembling that of hay. It is called provincially Finkel.

Properties and Uses.—The tender stalks are used in salads: the leaves, boiled, enter into many fish-sauces, and are served up with mackerel in many parts of England. The blanched stalks of the Sweet Fennel (*Fœniculum dulce*) are eaten with vinegar, oil and pepper, as a cold salad, and much esteemed by the Italians, who likewise use them in soups. In Germany, the seeds are used as a condiment in bread and various dishes.

The whole plant of the common Fennel has a fragrant, aromatic odour, which is most developed, however, in the leaves and fruits. It is warm, sweetish, and aromatic to the taste, and becomes more agreeable on being dried.

“A savoury odour blown,
Grateful to appetite, more pleased my sense
Than smell of sweetest *Fennel* or the teats
Of ewe or goat dropping with milk at even.”

MILTON, *Par. Lost*, b. ix., l. 579.

Chemical analysis has procured from the fruits an aromatic and sweet volatile oil, a small quantity of fatty oil which is congealed by cold, an aromatic resinous bitterish extract, and an aqueous extract which is almost inert. According to Matthioli, when the stems of this plant are cut, in warm climates, there exudes a gum-resin, which is collected by the inhabitants under the name of Fennel gum.

Fennel was well known to the ancients. Hippocrates and Dioscorides employed it to increase the secretion of milk. Pliny reiterates the old opinion that serpents, when they cast their skins, resort to this plant to restore their sight; hence its reputed effects in dimness of sight and blindness. This gave rise to the ancient distich—

“*Fœniculum*, *Rosa*, *Verbena*, *Chelidonia*, *Ruta*,
Ex his fit aqua, quæ lumina reddit acuta.”

Translated by Gerard—

“Of Fennel, Roses, Veruain, Rue, and Celandine,
Is made a water good to cleere the sight of eie.”

As a topical application, cataplasms or decoctions of the herb have been found useful in resolving indolent tumours and

chronic swellings. The root of this plant was considered one of the five greater aperient roots, and was esteemed by Boerhaave equal to the far-famed ginseng. Its expressed juice, or a decoction of it in wine, was reckoned diuretic and repellent, and was given in intermittent fevers and eruptive disorders. The distilled water is a good carminative for infants, and a vehicle for nauseous remedies; it has also been recommended as a collyrium for weak eyes. The essential oil, given in the dose of two to six drops on a lump of sugar, was considered serviceable in flatulencies and colic. Externally, it has been used in toothache, pain of the ear, and other deep-seated pains. A syrup prepared with the expressed juice was used in asthma and old coughs. Fennel was an ingredient in the Theriaca Andromachi, and the Mithridatum.

At the present time Fennel is used in medicine only to a small extent, in the preparation of a distilled water and a volatile oil. Its chief use is in veterinary practice.

LXXII.

TRIGONELLA FENUM-GRÆCUM, L. FENUGREEK.

Nat. Ord. LEGUMINOSÆ.*F.* FENUGREC. *G.* FOENUGRÆC, BOCKSHORN.

Description.—Root annual, long, tapering, whitish, and fibrous. Stem erect, round, fistulous, nearly simple, slightly hairy, about 2 feet high. Leaves shortly petiolate, disposed in threes, with obovate, obsoletely toothed leaflets, contracted at the base, strong scented; stipules lanceolate, falcate, entire, pubescent. Flowers yellowish white, axillary, solitary or twin. Calyx campanulate, nearly diaphanous, with 5 subulate ciliated segments. Corolla papilionaceous, a little longer than the calyx; keel very small; wings ovate, entire, reflexed, elongated at the base; vexillum oblong, erect, concave at the base, indented at the apex. Stamens diadelphous, furnished with simple anthers. Ovary falcate, surmounted by a short taper-

ing style, terminated by a simple stigma. Fruit, a long, compressed, falcate legume or pod, reticulated with longitudinal veins, tipped with a long beak, and containing several rhomboidal seeds, of a brownish yellow colour. (Plate XX., fig. 1: (a) entire flower; (b) stamens and pistil; (c) legume; (d) seed.)

Distribution.—Mediterranean region, South of France, Greece, Egypt. Cultivated also in India, and was at one time occasionally cultivated in this country. Flowers June to August.

"Fenugreek is cultivated in Morocco, in the South of France, near Montpellier, in Alsace; in a few places in Switzerland, and in some provinces of the German and Austrian Empires, as Thuringia and Moravia. It is produced on a far larger scale in Egypt, where it is known by the Arabic name, Helbeh, and whence it is exported to Europe and India. Under the Sanskrit name of Methi, which has passed into several of the modern Indian languages, Fenugreek is much grown in the plains of India during the cool season."—*Pharmacographia*, p. 151.

Etymology—The English name Fenugreek is a corruption of *Fœnum-Græcum*, Grecian hay, the name given by the Romans to this plant, because it was very common in ancient Greece. Pliny calls it *silicia*, as well as *fenugræcum*; Columella *siliqua*, and Varro *silicula*. Theophrastus designates it *βουκερας*, Cow's-horn, in allusion to the shape of the seed-vessel, but the common name with the Greeks was *τηλιν*. The present generic name, *Trigonella*, is a compound of *τρις*, three, and *γωνια*, an angle, because of the triangular appearance of the flower.

Fenugreek may be cultivated in this country, but it yields an uncertain produce, on account of the inconstancy of our climate.

Properties and Uses.—This plant was frequently employed for culinary purposes by the Egyptians, Greeks, and Romans. The seeds have been roasted as coffee, and are said to afford a yellow dye.

The odour of the seeds is fragrant, resembling that of melilot;

when bruised they are disagreeable, and have an unctuous farinaceous taste, accompanied with a slight bitterness. They contain so large a quantity of mucilage, that an ounce, boiled in a pint of water, renders that liquid very thick and slimy. Alcohol extracts their odorous matter and peculiar flavour. The earliest writers speak of the emollient, lubricating, maturating, and discutient properties of the seeds of this plant; they were likewise employed in the form of decoction in ophthalmia, aphthous ulcers of the mouth, chapped lips, and other external inflammations.

Though these seeds had a place in the Pharmacopœias of the last century, they are now no longer used. They are, however, employed in veterinary practice, and as an ingredient in curry powder; but chiefly in the preparation of the much-advertised cattle-foods.

LXXIII.

ASPIDIUM FILIX MAS, Swartz. MALE FERN.

Nat. Ord. FILICES.*P.* FOUGÈRE MALE. *G.* WURMFARN.

Description.—Rhizome long, thick, creeping, ligneous, dark brown externally, covered with thick brown scales and long, black, tough fibres. Leaves or fronds, circinate in veneration, springing immediately from the rhizome; large, erect, often 3 feet long, green, smooth, with a short foot-stalk, clothed with reddish brown, nearly transparent, chaffy scales; pinnules alternate, lanceolate, acute; leaflets numerous, rather confluent at the base, linear-oblong, obtuse, and finely serrated. Fructification scattered over the back of the leaves, in masses, called *sori*, placed in two rows near the midrib of each leaflet, and covered by a membranous involucre (*indusium*), which is orbicular, somewhat reniform, and fixed by the sinus. Each capsule (*theca*) globose, 1-celled, attached by a short pedicel and girt with an articulated elastic ring (*annulus*), which flies

back when the capsule is ripe, and discharges the spores. (Plate XVIII., fig., 2: (a) the back of a leaflet, showing the sori; (b) a portion of the leaflet, magnified, exhibiting the involucre, with numerous thecæ; (c) a capsule, or theca, detached, magnified; (d) the same, opening to eject the spores.)

Distribution.—Europe generally, Central and Russian Asia to the Himalayas and Japan, Africa, North and South America. In this country in woods and on shady banks, producing its fructification for the most part from June till August.

Etymology.—The generic name *Aspidium* is formed from *ασπις*, a shield, which the indusia of some of its species resemble. This species is supposed to be the *περις* of Dioscorides, so called from *πτερυξ*, a wing, in allusion to the doubly pinnate leaves.

The spores being excessively minute (a single frond has been computed to produce upwards of a million), the opinion has been long prevalent that Ferns must be destitute of seeds; hence in Shakspeare: "We have the receipt of Fern-seed, we walk invisible."—*Henry IV.*, act ii., sc. 1.

Properties and Uses.—The young shoots of the male Fern have been eaten in the same manner as asparagus. The fronds, in common with those of the female Fern, afford a useful thatch for outbuildings, and an excellent litter for horses and cows, and a fuel for heating ovens. Gunner informs us that in Norway they are dried and steeped in hot water, and in this state are used as a substitute for hay in times of scarcity; the herbage also is employed to stuff beds and mattresses: The ashes of the plant, when burnt, contain a large proportion of vegetable alkali, which was much used in the manufacture of glass. The poorer class mix these ashes with water, and form them into round masses, which they call *fern balls*, and being heated in a fire, are used as a ley for scouring linen. Dalechamp states that in Normandy, in times of extremity, a kind of bread is made of the root; although this part is so astringent as to have been employed in dressing leather. In Siberia it is used in brewing, and it is thought to be one of the best substitutes for hops.

The rhizome has a feeble odour, and a sweetish astringent taste. It is somewhat fleshy, and easily cut with a knife. The efficacy of the rhizome as a vermifuge has been known from the remotest times of which we have any medical record. Theophrastus, Galen, Pliny, and Dioscorides, all extol its virtues as an anthelmintic. It has also been recommended in gout, scorbutic affections, hypochondriasis, inveterate ulcers, etc.

Madame Nouffer, a surgeon's widow, acquired great celebrity, about a century and a half ago, by the sale of a secret remedy for the cure of tape-worm. The following is the recipe:—

After a supper of panada, and the injection of an emollient clyster, the patient is to take three drachms, or an infant one drachm, of the powdered root of male Fern, in common water; and in two hours a strong dose of calomel and scammony. If this does not operate speedily, it is to be followed by a dose of purging salts; and if the worm be not expelled in a few hours, the medicine is to be repeated at proper intervals.

This, after a trial of its efficacy by the principal physicians of Paris, was bought by the French government for 15,000 francs, and published by their order.

Peschier of Geneva, proposed in 1825 the use of an ethereal extract in place of the powder of the root, as a more convenient and efficient preparation. This, however, was scarcely used in England till about the year 1851, and now it is the only form used, and prescribed as a vermifuge chiefly for the expulsion of tape-worm.

For medicinal purposes the rhizome should be collected late in the autumn, winter, or early spring, split open, gradually dried, and reduced to a coarse powder, and exhausted with ether. The expressed mucilaginous juice of the plant has been much lauded as an application to burns.

LXXIV.

MATRICARIA PARTHENIUM, L. FEVERFEW.

Nat. Ord. COMPOSITÆ.

F. MATRICAIRE. G. MUTTERKRAUT.

Description.—Root perennial, thick, much branched, with numerous long tufted fibres. Stem erect, firm, smooth, striated, branched, about 2 feet high. Leaves alternate, petiolate, light ash-coloured green, pinnated; pinnules more or less ovate, decurrent, pinnatifid, with incised, somewhat obtuse lobes. Flowers large, pedunculate, disposed in a corymbose manner at the extremity of the stem and branches. Involucre hemispherical, imbricated with membranous scales, somewhat villous at the margin. Florets of the disk numerous, perfect, tubular, and 5-toothed, yellow; those of the ray pistilliferous, short, oblong, nearly round, with three small terminal teeth, white. Filaments 5, very short; anthers forming a hollow cylinder. Ovary angular, abrupt, with a short filiform style, and a bifid, obtuse, spreading stigma. Receptacle naked, slightly conical, brownish black, dotted. Fruit oblong, truncate at the base, smooth, furrowed, whitish, destitute of pappus, crowned with a shallow, slightly toothed, membranous border. (Plate XX., fig. 3: (a) the root; (b) floret of the disk, magnified; (c) floret of the ray; (d) scale; (e) vertical section of the flowering axis; (f) seed, magnified.)

Distribution.—Middle and Southern Europe, introduced into many parts; a garden escape in this country. Flowers July to September.

Etymology.—Feverfew is supposed to be the *παρθένιον* of Dioscorides, so called from its use in disorders of the uterus, and of which *Matricaria* is a kind of Latin version.

A variety with double flowers is cultivated in gardens for its ornamental character. In this state, the florets of the disk are so metamorphosed as to resemble those of the ray.

Properties and Uses.—The odour of Feverfew is peculiar, strong, and pungent, resembling chamomile and tansy, but

more developed, and is partly lost in drying. It is bitter, hot, and nauseous to the taste. It contains a small quantity of resin combined with a bitter mucilage, and a bluish volatile oil, which separates on distilling the plant in water. Its other principles are also obtained by infusion in water and alcohol.

This plant is described as exercising a powerful tonic action upon the animal economy, hence result the antispasmodic, stomachic, diuretic, emmenagogue, resolute, and other properties attributed to it. It has been more especially celebrated for its specific action on the uterus, promoting the menstrual evacuation and the lochial discharge, aiding the expulsion of the placenta, facilitating difficult labours, and curing hysteria. In this character it has been regarded, more or less, since the age of Dioscorides, and is highly recommended by Simon Pauli and many other physicians, though neglected by practitioners in the present day: few plants, however, are more extensively employed by country people. Ray and Lange recommend it as a vermifuge, and Miller for use in intermittent fevers; hence the name Feverfew. Gerard says, "It is used both in drinks, and bound to the wrists with bay salt, and the powder of glasse (!) stamped together, as a most singular experiment against the ague."—*Herball*, p. 658.

Externally the decoction of Feverfew has been employed in fomentations, generally combined with chamomile flowers, and sometimes with wormwood and St. John's wort.

LXXV.

SCROPHULARIA AQUATICA, L.

WATER FIGWORT, OR WATER BETONY.

Nat. Ord. SCROPHULARINEÆ.*F.* SCROFULAIRE, BÉTOINE D'EAU. *G.* WASSER-BRAUNWURZ.

Description. — Rootstock stout, creeping. Stem erect, smooth, branched, quadrangular, winged at the angles, 3 or 4 feet high. Leaves opposite, petiolate, ovate-oblong, cordate at the base, rather obtuse, crenate and somewhat toothed, nerved, smooth, deep green, paler beneath. Flowers form naked, terminal panicles, remotely branched, furnished with small lanceolate bracts. Calyx 5-lobed, edged with purple. Corolla reddish purple, much longer than the calyx, tubular, nearly globose, with an inflated tube; limb short, 2-lipped; upper lip orbicular, 2-lobed, and a small scale or abortive stamen within it; lower lip 3-lobed, of which the middle one is reflexed. Stamens 4, didynamous, inclined towards the lower lip. Anthers 2-celled. Ovary superior, ovate, terminated by a simple style and stigma. Capsule ovate-acuminate, 2-celled, 2-valved, margins of the valves turned inwards, containing several small seeds. (Plate XVIII., fig. 3: (a) calyx and pistil; (b) corolla; (c) the same, opened to show the stamens; (d) pistil; (e) capsule; (f) the same, cut transversely.)

Distribution. — Europe, from Denmark southwards, Northern Africa, Siberia, Western Asia to the Himalaya. Flourishes in this country by the sides of ditches, and in moist situations. Flowers July to September.

Etymology. — Figwort seems to have been unknown to the ancients, it is at least unnoticed in their writings. The generic name was bestowed in consequence of the reputed efficacy of the plant in scrofula. The species here described is called in some counties Brown-wort, and in Yorkshire Bishop's leaves.

Properties and Uses. — Water Figwort exhales when fresh a strong disagreeable odour, which is partly lost in drying

The taste is bitter, rather acrid and nauseous. It yields its active matter both to water and alcohol.

Goats eat this plant, but other animals refuse it. Wasps and bees resort greatly to the flowers.

This plant was characterized in ancient times as a vulnerary. Its celebrity in this respect appears to have been heightened by its employment at the siege of Rochelle in 1628, when, in defect of other remedies, the soldiers applied it to their wounds, which it speedily healed. Lochnerus mentions an instance of a dreadful wound which was cured by the outward application of the juice, the patient at the same time drinking a strong decoction of the herb. The leaves have been much used to correct the disagreeable taste and smell of senna, without altering its purgative properties. The decoction and distilled water are recommended as cosmetics.

The employment of the tubercled roots of knotted Figwort in piles and scrofulous tumours, chiefly as an amulet, is thought to have originated in the visionary doctrine of signatures. Many celebrated physicians, however, such as Arnoldus, Henricus ab Heers, Mayerne, Ettmuller, and others, implicitly believed in its efficacy.

The powdered root has been used as a vermifuge; a lotion prepared from it, in cutaneous eruptions. Cataplasms and fomentations from the roots, and ointment prepared from the leaves, have also been used in ulcers and scrofulous tumours.

The Knotted Figwort (*Scrophularia nodosa*) is frequent in woods and moist ground, and is very similar in properties to the one here figured.

LXXVI.

PINUS ABIES, L. NORWAY SPRUCE FIR.

Nat. Ord. CONIFERÆ.*F.* EPICÆA. *G.* FICHTE.

Description.—A straight, pyramidal tree, often 100 feet or more high, covered with a reddish, scaly bark. Leaves thickly set upon the branches, ascending, somewhat imbricated, solitary, linear-subulate, mucronate, smooth, scarcely an inch long, with four rather unequal angles, shining dull green. Flowers monoecious, terminal; males in erect, ovate, cylindrical, purplish catkins, on short footstalks, and furnished with numerous spreading bracts; anthers yellow, with a roundish, reniform, deeply toothed crimson crest. Female catkins sessile, oblong, erect, of a rich crimson hue, with the ovary spread open and resembling a flat scale, destitute of style or stigma, and arising from the axil of a membranous bract. Fruit a cone formed of the scale-shaped ovaries, pendulous, and solitary from the end of the branches, long, nearly cylindrical, of a purplish colour; scales flattish, imbricated, smooth, rhomboid, wavy at the margin and notched at the point. Seeds small, ovate, compressed, covered with a hard, crustaceous integument, and furnished with 2 thin elliptical wings. (Plate XXI., fig. 1: (*a*) anthers; (*b*) female catkin; (*c*) scale of the same, detached; (*d*) seeds; (*e*) the ripe cone; (*f*) leaf.)

Distribution.—Northern and mountainous parts of Central Europe. It is not indigenous to this country, but has been cultivated from about the year 1548. Flowers in April.

Etymology.—According to Bullet, the term *Abies* is derived from *abetoa*, the name for the Fir in one of the Celtic dialects. It was also called by the Greeks *αβιος* and *αβιν* as well as *ελατη*.

Properties and Uses.—The Norway Spruce is well known as affording the useful timber known as deal, which is imported from Norway in such large quantities for building purposes, masts, spars, etc.

Linneus, in his *Flora Lapponica*, says that the Laplanders select the long and slender roots of this Fir, and after boiling them in water for about an hour, with a great quantity of ashes, scrape them while yet warm with a knife, and then twist them into ropes. "They make elegant baskets of the same material, and boats of very slender planks of the wood, sewed together with the roots, lest iron should make them too heavy. They also collect the resin, fresh and almost liquid, from the tree, and masticate it until the bitterness is nearly extracted, after which it is carefully preserved and called *tuggkoda*. This they are constantly in the habit of eating when assembled in their religious edifices, and though it occasions a great waste of saliva, it may perhaps act as an antiscorbutic. These people are very fond of ardent spirit, and although not able to prepare it themselves, they drink with avidity that which is brought them by strangers; the consequence is, that after the delirium has subsided, they are seized with intolerable headaches. As a remedy for this they take the young shoots of the Spruce Fir and apply them bruised to the part affected; some to expedite the cure hold their heads down to the fire, and continue in this position till they are almost lifeless. In Finmark the tops of the young shoots are gathered and chopped up with oats, as winter food for horses."

Spruce beer is made from several species of Fir, and frequently from the one now before us, by boiling the young shoots in water with the addition of molasses or coarse sugar, which is then put into a cask, and after a slight fermentation is securely corked to prevent the escape of the carbonic-acid gas. It has been highly extolled as antiscorbutic, and for its sudorific property has been prescribed in rheumatic and gouty pains, and in scurvy, for which purpose it was at one time used in the Royal Navy.

Burgundy pitch is the principal medicinal product of this tree. It is produced in Finland, the Black Forest, the Grand Duchy of Baden, Austria, and Switzerland. It is obtained from the trunks of the trees by making incisions quite through the bark to the wood. The operation is performed from April to September, and the juice concretes in the form of flakes,

which are detached by an iron instrument. The flakes are then put into large boilers with a sufficient quantity of water, melted, and then strained by a press through coarse cloths. It has a terebinthinate odour and taste, is brittle, opaque, and of a light yellowish colour. It is rendered soft and unctuous by a moderate heat, and is very tenacious. Alcohol entirely dissolves it. Burgundy pitch is never employed internally, but it forms an excellent adhesive and moderately warm stimulating plaster, exciting some degree of irritation, and occasionally a slight eruption, and serous exudation from the parts to which it is applied. It is a useful application to the chest in coughs and pains of the muscular parts of the chest. In Germany a composition of Burgundy pitch and colophony is used for lining beer casks.

The effluvia of the Norway Spruce are supposed to render the air salubrious, on which account it is usual in Sweden to cut the branches into pieces, of about half a finger-length, and strew them on the floors of apartments tenanted by invalids.

LXXVII.

ACORUS CALAMUS, L. SWEET FLAG.

Nat. Ord. ARIODEÆ.

F. ACORE ODORANT, ROSEAU AROMATIQUE. *G.* KALMUS, ACKERWURZEL.

Description.—Rhizome horizontal, long, about as thick as the finger, subcompressed, jointed, marked with the remains of former leaves, and furnished with fibres or rootlets; externally brownish green or reddish white, internally white, soft and spongy. Leaves yellowish green, from 2 to 3 feet long, erect, ensiform, acute, sheathing, often undulated at the edge. Flowers arranged on a spadix issuing laterally from a triangular, slightly compressed scape, which, proceeding upwards, tapers into a leafy expansion, rather narrower and shorter than the leaves. Spadix cylindrical, sessile, about 3 inches

long, attenuate at each end, and covered with small pale green flowers, placed quincuncially. Perianth of 6 scarious leaves or scales, equal concave, quadrate-oblong, obtuse, keeled. Stamens 6, opposite to, and rather longer than the scales; filaments thick, terminated by 2-celled anthers turned inwards. Ovary superior, oblong, hexagonal, with a small simple sessile stigma. Capsule a kind of berry, pyramidal, triangular, obtuse, furrowed, 3-celled, containing several oval seeds. (Plate XIX., fig. 2: (a) entire flower; (b) stamen; (c) anther dehiscing, magnified; (d) ovary; (e) seed, magnified.)

Distribution.—Europe, Siberia, Dahuria, Himalaya, North America. On the banks of rivers and in watery places, in the middle and south-eastern counties of England; very rare in Scotland. Flowers June and July.

Etymology.—The generic name is derived from *κονη*, the pupil of the eye, from its use in diseases of that organ. Calamus was a general name with the Romans for anything resembling a cane or reed, as the English word *flag* is for drooping or prostrate objects; and the foliage of this plant resembling that of the iris, it has received a similar appellation.

Properties and Uses.—In some counties of England in which this plant abounds, it was formerly used to strew the floors of houses instead of rushes, and for the sake of its agreeable odour it was used for the same purpose in cathedrals on festival days. The root is used for several articles of perfumery, and the French snuff *à la violette*, is scented with it; brewers, it is said, used to employ it to give a flavour to their porter; and throughout the United States it is used by the country people as an ingredient in wine-bitters, and by the Swedes in spirits distilled from corn. The whole plant is rejected by cattle, and is obnoxious to most insects, hence it has been proposed to be placed in drawers and on shelves to protect clothes, books, etc. It has been used for tanning leather. The rootstock, the virtues of which were known to the ancient Greek and Arabian physicians, is the only part used in medicine. In consequence of its prompt and powerful tonic action upon the system, it has been regarded as excitant, stomachic, diaphoretic, diuretic, incisive, etc., and has

therefore been found useful in colic, flatulence arising from dyspepsia, and in vertigo, headaches, etc., proceeding from the same cause. It has also been used in malignant fevers, and agues. The fresh root, candied, is used in Turkey and India by dyspeptic patients, and is masticated as a preservative against epidemic diseases.

"Sweet Flag-root has been from the earliest times a favourite medicine of the natives of India, in which country it is sold in every bazaar. Ainslie asserts that it is reckoned so valuable in the bowel complaints of children, that there is a penalty incurred by any druggist who will not open his door in the middle of the night to sell it if demanded."—*Pharmacographia*, p. 614.

Though the rootstocks of the *Acorus* still find their way to the London market, to which they are brought direct from Germany, which country is said to be originally supplied by Southern Russia, they are seldom now used in regular medicine, but they are said to be used for flavouring beer, for masticating for clearing the voice, and by snuff manufacturers.

LXXXVIII.

IRIS PSEUD-ACORUS, L.

YELLOW FLAG, OR WATER IRIS.

Nat. Ord. IRIDÆÆ.

F. IRIS DES MARAIS. *G.* WASSER-SCHWERTLILIE.

Description.—Rootstock creeping, tuberous, horizontal, blackish externally, yellowish red and spongy within, furnished with many thick, cylindrical, descending fibres. Stem erect, nearly cylindrical, rather zigzag at the summit, smooth, 3 to 4 feet high. Root-leaves long, upright, plane, broadly ensiform, striated, acute, smooth, equitant at the base; cauline ones shorter, alternate, sheathing, deep green. Flowers large, showy, deep yellow, situated towards the summit of the stem, on short alternate peduncles, with 2 or 3 membranous bracts

at the base. Perianth (calyx) 6-lobed, resembling petals, of which the 3 inner ones are smaller and erect, the 3 outermost are large, roundish-ovate, reflexed, and marked near the base with purplish lines, not bearded. Stamens are furnished with flat, tapering stigmas, and oblong, brownish purple anthers, bent down by the stigmas. Ovary inferior, oblong, 3-sided, with a very short style, and 3 large, yellow, obtuse stigmas, resembling petals, bipartite, and irregularly serrate. The capsule is triangular, 3-celled, 3-valved, containing numerous large rounded seeds. (Plate XIX., fig. 3: (a) pistil and stamens; (b) ripe capsules, one of which is opened; (c) seed.)

Distribution.—Europe, Northern Africa, Siberia. Frequent in this country in marshy places, wet meadows, by the sides of lakes, etc. Flowers May to August.

Etymology.—The generic name was given by the ancients to this assemblage of plants, on account of their beautiful and varied colours; according to Plutarch, from a word in the ancient Egyptian tongue, which signified *eye*—the eye of heaven. The species here described has the English vernacular names of Yellow Flag, Water Flag, Bastard Fleur-de-Luce, and in the North, Seggs.

Properties and Uses.—The leaves of this plant when fresh are eaten by goats, and in a dry state by cows, but are refused by horses and hogs. The root, boiled in water, with the addition of copperas, has been used as a substitute for ink, and as a dye for woollen cloth. The flowers are said to afford a beautiful yellow dye. The seeds, roasted, resemble coffee. The leaves make excellent thatch, and are used for bottoms to chairs.

The expressed juice of the recent root is very acrid, and on being snuffed up the nostrils, produces a burning heat in the nose and mouth, accompanied with a copious discharge from those organs: hence it has been recommended as an errhine and sialagogue, and is said to have been used successfully in obstinate headache and toothache. The recent root has been used in dropsy, diarrhoea, dysentery, and as a vermifuge.

The roots of *Iris florentina* are known in the shops by the name of orris-root. There are but two British species, the one here described and the stinking Iris (*Iris foetidissima*).

which has flowers much smaller than the other, and of a dull livid purple; the leaves when bruised have a strong smell, hence it is called Roast-beef-plant in some of the southern and western counties, where it is very common. It flowers in May, in woods and pastures.

LXXIX.

LINUM USITATISSIMUM, L. COMMON FLAX.

Nat. Ord. LINEÆ.

F. LIN. *G.* LEIN, FLACHS.

Description.—Root annual, small, and fibrous, producing a straight, slender, smooth, cylindrical, leafy stem, branched towards the summit, about $1\frac{1}{2}$ feet high. Leaves alternate, distant, lanceolate, generally acute, entire, glaucous, 3-nerved, pointing upwards. Flowers numerous, erect, on long unifloral, axillary, and terminal peduncles, forming a kind of corymb. Sepals 5, persistent, ovate, mucronate, 3-nerved, whitish and scariose at the margin. Petals 5, crenate at the point, obovate, shining, purplish blue, marked with deeper veins, and furnished with whitish claws. Stamens 5; filaments subulate, erect, about the length of the calyx, united at the base in a ring, from which proceed little teeth, opposite the petals, and indicating abortive stamens; anthers sagittate, 2-celled, innate. Ovary ovate, surmounted by 5 capillary erect styles, as long as the filaments, and terminated by as many obtuse stigmas. Capsule globose, obscurely 5-sided, mucronate, 10-celled and 10-valved, dehiscing at the apex. Seeds solitary in the cells, compressed, elliptical, acute, smooth, and shining. (Plate XIX., fig. 1: A. (a) the stamens; (b) ovary and styles; (c) the capsule, cut transversely.)

Distribution.—In all temperate and tropical regions of the globe; largely cultivated. Not unfrequent in corn-fields in this country, as an escape from cultivation. Flowers June and July, and ripens its seed in September.

Etymology.—The generic name is derived from the Celtic *lin*, thread; whence the Greek *λινον*, the Latin *Linum*, and other synonyms. The above species is called provincially *Lint* and *Lyne*.

Properties and Uses.—From the remotest antiquity this plant has been celebrated for its multifarious uses in the arts and domestic economy. The preparation of the fibre and the weaving of it into fabrics were well known to the Egyptians, who constantly used it for mummy cloths. Its use is stated, on good authority, to date from the 23rd century, B.C. In later times, in our own country, when every little household prepared their own garments, hemp and flax were assiduously cultivated. In the present day, very little is grown in England, as it exhausts the soil more than any other crop, and wheat is much more profitable. The seeds are chiefly imported from the Baltic. The cortical fibres, separated from the woody matter by maceration in water and various processes, forms the lint and tow which is spun into yarn and woven into linen cloth. The seeds, bruised and mixed with honey, are used as food in some parts of Asia, and in times of scarcity have been employed in Holland for the same purpose; but they afford little nourishment, and are very difficult of digestion. The expressed oil is applied to many useful purposes, and the refuse or paste, called oil-cake, is a valuable food for fattening cattle, and for manure. The water in which the plant is immersed previous to separating the fibres has also a fertilizing effect upon the soil; but this water is of so poisonous a nature to animals, that the practice of macerating or steeping flax in any pond or running stream is, by the 33rd Henry VIII., c. 17, prohibited under severe penalties.

The seeds are inodorous, insipid to the taste, and abound in mucilage and fixed oil; the latter resides in the integuments, and is easily extracted by boiling water. M. Vauquelin found it to contain gum combined with an azotized matter, acetic acid, acetate and muriate of potass, with other salts, to which he attributes the diuretic properties of the seed. One hundred parts of linseed yield about twenty-two of oil, which for medical purposes should be expressed without heat.

The seeds formed an important article of food amongst the ancient Greeks and Romans, and they are still used, when roasted, by the Abyssinians. The demulcent properties of linseed were known to Hippocrates and most of the other ancient writers.

An infusion of the seeds, known as linseed tea, has long been used in pulmonary complaints, pleurisy and similar affections; and when bruised, in the form of linseed meal or "crushed linseed" for poultices.

Linseed oil has been used internally in medicine, and was at one time considered a valuable demulcent and laxative. It is a valuable application externally to burns and scalds, mixed with lime water or oil of turpentine. By the speedy application of this remedy much pain is prevented, and the subsequent vesication greatly diminished. If turpentine be not at hand, any other spirit may be substituted. Frictions made with the oil upon hard tumours and sprains are often of service. The chief use of the oil, however, is for mixing paints.

LXXX.

LINUM CATHARTICUM, L.

PURGING FLAX, OR MILL-MOUNTAIN.

Nat. Ord. LINEÆ.

F. LIN PURGATIF.

G. PURGIRFLACHS.

Description.—Root annual, very small, woody, tapering. Stems straight, round, smooth, bowed at the base, dichotomous upwards, from 2 to 6 inches high. Leaves opposite, sessile, elliptical, smooth, obtuse with a slight point, entire, glaucous beneath. Flowers terminal, solitary, on long peduncles, forming a kind of panicle at the top of the stem, gracefully drooping before expansion. Sepals ovate-oblong, acuminate, serrated, smooth, with a solitary nerve. Petals 5, obovate, acute, spreading, white, deciduous. Stamens 5, filaments subulate, in a circle round the ovary, and tipped with roundish anthers.

Ovary ovate, green, smooth, somewhat angled, with 5 capillary styles, and capitate yellow stigmas. Capsule globose, invested by the calyx, pentagonal, 10-celled and 10-valved, each containing a small, shining, oblong, pointed seed. (Plate XIX., fig. 1: B. (a) calyx; (b) stamens; (c) pistil; (d) fruit.)

Distribution.—Europe (Arctic), Canaries, Western Asia to Persia. Common in this country in heaths and pastures. Flowers June to September.

Properties and Uses.—Purging Flax has scarcely any odour, but a bitter, subacid, and nauseous taste. Water extracts the whole of its virtues, and the aqueous infusion is of a yellowish colour, inodorous, very bitter, and manifests its astringency by the black colour produced in it by sulphate of iron. Its cathartic property appears to depend on extractive matter and a bitter resin.

By the concurrent testimony of nearly all the old writers, this plant is a safe and effectual cathartic. It has been used in the form of infusion, and Linneus recommends it in incipient dropsy and in affections of the kidney and bladder. An extract has also been prepared from it, and it has likewise been administered in the form of a powder.

Its cathartic properties are well known to the peasantry, who infuse a handful of the recent herb in water or whey.

LXXXI.

ÆTHUSA CYNAPIUM, L. FOOL'S-PARSLEY.

Nat. Ord. UMBELLIFERÆ.

F. CIGÜE DES MARAIS. *G.* HUNDS-GLEISSE.

Description.—Root annual, slender, tapering, nearly white, with several creeping, filiform fibrils. Stem erect, 12 to 18 inches high, branched, leafy, smooth, cylindrical, obscurely striated, shining, lurid green, with a dull purplish tinge at the base; flowering stems deeply and acutely furrowed. Leaves uniform, bipinnate, lowermost tripinnate, glabrous, lurid green;

leaflets decurrent, rhomboid-lanceolate, lobed, and cut, rather obtuse, with but a short mucro at the point; petiole furrowed, slender, sheathing at the base, scarious. Flowers in terminal umbels of 8 to 15 nearly equal radii, spreading or slightly incurved; umbellules small, distant. General involucre wanting; partial one composed of 3 unilateral, exterior, linear-subulate, drooping leaves. Calyx teeth small or wanting. Petals 5, small, white, obcordate, nearly equal, emarginate, with an inflexed point; the outermost somewhat radiant. Stamens about as long as the petals, spreading between them, with thread-shaped filaments and roundish anthers. Ovary ovate, furrowed, crowned by the yellow glandular disk, and terminated by 2 short recurved styles, with obtuse stigmas. Fruit yellowish brown, ovate, somewhat globose, of 2 carpels, marked with 5 acute ridges, the lateral ones marginal, a little broader, and bordered by a somewhat winged keel; each contains an ovate, plano-convex, brown seed. (Plate XXI., fig. 3: (a) the corolla, stamens, and pistil; (b) the fruit, somewhat magnified; (c) the same, separating at maturity into two carpels; (d) the seed.)

Distribution.—Europe, Siberia. Introduced in North America. A common weed in cultivated ground in this country. Flowers July to August.

Etymology.—The generic name is derived from *αιθω*, to burn, in allusion to its acrid taste. It has been called *Cynapium*, or Dog's-parsley, as a mark of inferiority to the common parsley; and Lesser Hemlock, in contradistinction to the true or common hemlock. Being a common weed in rich garden soil, it has been inadvertently gathered for culinary parsley, and has given rise to serious accidents.

Properties and Uses.—This plant has scarcely any smell when fresh, but exhales a disagreeable odour when bruised. The root has no particular taste. The fresh leaves somewhat resemble Parsley in flavour, but are destitute of the peculiar aroma of that herb; dried, they have a nauseous, bitterish taste, their acidity having disappeared. The fruit has all the properties of the herbaceous parts in a higher degree, and when chewed manifests a slight pungency in the gullet and stomach.

Alcohol appears to be the best menstruum for the virtues of this plant. Professor Ficin^{us}, of Dresden, discovered in it an alkaloid, to which he gave the name of *cynapin* or *cynapia*. It is crystallizable, and soluble in alcohol and water, but not in ether.

With regard to the poisonous properties of the plant, Orfila gave six ounces of the expressed juice to a strong dog, and tied the œsophagus. Twenty minutes after, the animal appeared nauseated, but some time elapsed before any urgent symptoms appeared. Suddenly he stretched out his limbs and lay on his belly. In a few minutes he tried to get up, but all his efforts were vain; the muscles of the limbs, the posterior especially, were powerless; he was raised up, but fell down again instantly. The organs of sense performed their functions; the pupils were scarcely dilated, and the pulsations of the heart were slow and vigorous. This state lasted for about a quarter of an hour, after which the extremities became convulsed, the organs of sense enfeebled, and the œsophagus and throat were the seat of spasmodic contractions. The stupor gradually increased, and the animal died at the end of an hour. On dissection, the heart was contracted and filled with blackish fluid blood, even in the left ventricle; the lungs were less crepitant than in their natural state; the stomach was full of the ingested juice, there was no alteration in the digestive canal.

Many cases of poisoning by this plant are recorded in old medical works, and in more recent medical journals, but the following will suffice to show the activity of the poison. A boy, six years old, having eaten, at four o'clock in the afternoon, of this herb, which he mistook for parsley, soon uttered cries of distress, and complained of cramps in the stomach. Before his father had conveyed him from the field, his whole body was much swollen, and assumed a livid tint; his breathing was short and very difficult, and he died about midnight. Another boy, four years old, who was poisoned in the same manner, was fortunately seized with vomiting; but this did not prevent the access of delirium. His life was saved, however, though the physician did not arrive till the next morning.

Few of the ancient writers attribute any medical virtues to this plant; some of them, however, mention its resolvent and sedative effects when applied externally. It has been in many instances given, designedly or inadvertently, as a substitute for hemlock, and has produced untoward symptoms.

LXXXII.

DIGITALIS PURPUREA, L. PURPLE FOXGLOVE.

Nat. Ord. SCROPHULARINÆÆ.

F. DIGITALE. *G.* FINGERHUT.

Description.—Root biennial, long, whitish, furnished with numerous slender fibres. Stem erect, 3 or 4 feet high, cylindrical, simple, clothed with fine down, leafy below, and terminated by the long spike of flowers. Radical leaves, large, ovate, spreading, with decurrent petioles; cauline ones somewhat decurrent, nearly sessile, ovate-lanceolate or elliptical; the whole are alternate, wrinkled, veiny, crenate at the margin, dull bluish green above, lighter, downy, and reticulated beneath. Flowers arranged towards the summit of the stem, in a long, pyramidal spike, turned in one direction; each flower pendulous, supported on a downy peduncle, subtended at the base by a small lanceolate leaf or bract. Calyx divided into 5 deep, ovate, ribbed, pointed lobes; uppermost smaller than the rest. Corolla roseate-purple, silky, hairy, and mottled within, ample, campanulate, inflated beneath, contracted at the tube, divided at the limb into 4 or 5 shallow, oblique lobes, or into 2 lips, upper obtuse, slightly emarginate, lower with 3 projecting lobes. Stamens didynamous, with declinate, thick, compressed filaments, the 2 longest crooked below, and inserted into the base of the tube; anthers large, yellow, with 2 deeply cleft, ovate lobes. Ovary superior, ovate, tapering, seated on a glandular ring or disk, surmounted by a slender style, with a bifid stigma, at first appressed, subsequently spreading. Capsule ovate, acuminate, subtended by the persistent calyx, and

tipped with the permanent style, 2-celled, 2-valved, containing numerous small, subangular, dark brown seeds. (Plate XX, fig. 2: (a) section of corolla, opened to show the stamens; (b) ovary, style, and stigma; (c) capsule, cut transversely.)

Distribution.—The greater part of Europe. Abundant in this country in copses and on banks. Flowers July to September.

Etymology.—The term *Digitalis*, from *digitale*, the finger of a glove, was applied to this plant by Fuchs, the first writer who mentions its medicinal qualities; this appellation was suggested by its German name, *fingerhut*, fingerstall. In France it is sometimes called *Gantelée*, and *Gants de Notre Dame*, our Lady's gloves, viz. the Virgin. The English is the only language in which it is designated Fox-glove; hence some have surmised that the proper orthography is *Folks-glove*, i.e. Fairies-glove. Dr. Prior, in his *Popular Names of British Plants*, 2nd ed. 1870, p. 84, says the English name is derived from the Anglo-Saxon *Foxes-glew*, literally Fox-music, in allusion to an ancient musical instrument, composed of bells, pendent from an arched support.

It is surprising that a plant so beautiful, and sufficiently striking to be introduced by painters in their landscapes, should not be alluded to by any of our old English poets, not even by Shakspeare. Some indeed have supposed it to be the—

“Long purples,
That liberal shepherds give a grosser name,
But our cold maids do dead men's fingers call them.”

Hamlet, act iv. sc. 7.

mentioned by the queen when relating the manner of Ophelia's death, but the plant here referred to is most probably *Orchis mascula*.

Properties and Uses.—“In preparing Foxglove for medicinal use, it is the custom of some druggists to remove the whole of the petiole and the thicker part of the midrib, retaining only the thin lamina, which is dried with a gentle heat. The fresh leaf has, when bruised, an unpleasant herbaceous smell, which in drying becomes agreeable and tea-like.

The dried leaf has a very bitter taste."—*Pharmacographia*, p. 423.

The following method was given at the early part of the present century, as the best way of preparing the powder from the leaves. These should be gathered when the plant is in full flower, and those of the second year which are completely developed and unwithered should be selected; those plants being preferred which grow in dry sunny localities. The stalk and midrib should be rejected, and the remaining part dried, either in the sun or before a moderate fire, then reduced to powder, and kept in phials closely stopped. The test of the goodness of the dried leaf is its beautiful green colour.

Foxglove was first noticed by medical writers in the fifteenth century; it has been more or less used ever since, but from the distressing and even fatal symptoms which sometimes resulted from its use, they were induced almost entirely to lay it aside. Fuchs was the first person who mentions it; it is also slightly alluded to by Gerard; and Parkinson, a celebrated authority in his day, strenuously recommended it as an expectorant, and as a very effectual remedy, combined with polypody, against epilepsy. He also speaks highly of its effects (the herb bruised, or an ointment made of the expressed juice) as an external application to scrofulous swellings. The use of Foxglove with the same view is also mentioned by Hermann, Bates, and Haller. To Withering, however, a well-known British botanist, chiefly belongs the credit of investigating its medicinal properties, and introducing it to modern practice. He published in 1785 an *Account of the Foxglove*.

At the present time Foxglove is often given in special cases as a sedative, and as a diuretic. It is a very potent drug, having the effect of reducing the force of the action of the heart.

The active principle of Foxglove is *digitalin*, one grain of which has been proved to kill a rabbit, without producing convulsions, in a few minutes. Orfila records several experiments made on dogs with the dried leaves of Foxglove, and many cases are on record of fatal consequences to man, both

from excessive doses and accidental administration. The following reference to one case, however, recorded at p. 223, vol. XXVII., of the *Edinburgh Journal*, will suffice to illustrate its poisonous character:—

Six ounces of a small decoction of Foxglove leaves were administered to a young lad by an empiric, as a laxative for some trifling complaint. The patient took this dose early in the morning, and soon after was seized with sickness, vomiting, and severe pains in the bowels, followed by purging. Towards the afternoon he became lethargic, and slept profoundly several hours. At midnight he awoke with vomiting and colic, and in a short time he was attacked with general convulsions. A surgeon who saw him early in the morning found him violently convulsed, with the pupils dilated and insensible, and the pulse slow, feeble, and irregular. Coma quickly succeeded, and death took place twenty-two hours after the poison was swallowed. On examining the body, the external membranes of the brain were found much distended with blood, and the inner coat of the stomach was red in some parts.

LXXXIII.

FUMARIA OFFICINALIS, L. FUMITORY.

Nat. Ord. FUMARIACEÆ.

F. FUMETERRE. *G.* ERDRAUCH, TAUBENKROPP.

Description.—Root annual, slender, fusiform, whitish, and fibrous. Stem slender, succulent, brittle, smooth, glaucous, erect or somewhat spreading, much branched, acutely pentangular, from 6 to 10 inches long. Leaves alternate, petiolate, twice or thrice winged, smooth, glaucous or cinereous green, lobes plane, wedge-shaped, cut, with linear-oblong obtuse segments. Flowers in loose erect spikes opposite the leaves, with a lanceolate acuminate bract at the base of each pedicel. Calyx of 2 lanceolate, acute, deeply toothed, deciduous sepals.

Corolla oblong, irregular, light rose, spotted with purple at the summit. Petals 4, irregular, the 3 upper connate at the base and spurred below the middle, lower one linear, free, greenish. Filaments combined in two parcels, each tipped with 3 small roundish anthers. Ovary superior, ovate, subcompressed, smooth, surmounted by a subulate deciduous style, as long as the stamens, and crowned with a capitate stigma. Fruit a small silicle, smooth, globose, retuse and umbilicate at the tip, indehiscent, valveless, and containing a single seed. (Plate XXI., fig. 2: (a) corolla; (b) calyx, stamens, and pistil; (c) the fruit; (d) the same cut transversely; (e) seed.)

Distribution.—Europe, Northern Africa, Western Asia. Introduced into the United States. Common in waste places in this country. Flowers May to September.

Etymology.—The generic name, derived from the Latin *fumus*, smoke, is said by Pliny to have been given in reference to the effects of the juice of this plant upon the eyes, causing a flow of tears as it were smoke; but he seems to have borrowed this etymology from Dioscorides, who calls it *καπνος*, smoke. It has also been called *Fumus terræ*, Earth-smoke, which has been supposed to refer either to the appearance of the foliage on a dewy summer morning, or to its peculiar smell.

Properties and Uses.—The plant is eaten by cows and sheep; but horses will not touch it, and goats dislike it. At one time it was used as a yellow dye. In taste it is somewhat saline and bitter, which is increased by drying.

Fumitory was considered by the ancients very efficacious in diseases of the eyes; Dioscorides also speaks of its diuretic qualities; and succeeding writers, such as Galen, Aetius, Orbasius, Serapion, Avicenna, Mesué, Camerarius, Hoffman, Rivière, and Boerhaave, all attribute to it valuable medicinal virtues, more especially for scorbutic and cutaneous diseases. Leidenfrost recommends it for this purpose in the form of expressed juice mixed with the juice of dandelion root.

LXXXIV.

ALLIUM SATIVUM, L. GARLIC.

Nat. Ord. LILIACEÆ.*F. AIL.* *G. KNOBLAUCH.*

Description.—Bulb nearly ovoid, with obtuse projections, covered with thin, membranous, reddish white integuments, beneath which are several small bulbs, seated on a kind of plate or disk, from which proceed a number of fibres constituting the true root. Stem or floral peduncle simple, cylindrical, smooth, about 18 inches high, with long, flat, lanceolate leaves towards the base, fewer and shorter upwards. Flowers in a clustered umbel at the summit of the stem, enveloped previous to expansion by a membranous spathe. Perianth single, composed of 6, white, ovate-oblong, spreading pieces. Stamens 6, alternately enlarged and 3-pointed, shorter than the corolla, with roundish anthers. Ovary superior, short, angular, with a simple style, and an acute stigma. Capsule short, broad, 3-sided, 3-valved, and 3-celled, containing numerous roundish, dark-coloured seeds. (Plate XX., fig. 4: (a) flower; (b) perianth, opened to show the stamens; (c) one of the alternate 3-pointed stamens; (d) pistil.)

Distribution.—South of France, Sicily and Southern Europe. Said to have been first cultivated in English gardens about 1540. Flowers in July.

Etymology.—The generic name is probably taken from *αγλῖδα* or *αγλῖθες*, the terms by which the Greeks designated the cloves of Garlic. According to Théis it is derived from the Celtic *all*, which signifies hot, burning.

Properties and Uses.—Garlic has been noted for its culinary uses from the remotest antiquity. The Egyptians were very fond of it, and were commonly reproached for swearing by the garlic and onions in their gardens; an absurdity noticed by Pliny, and by the keen satirist Juvenal. Its strong penetrating odour and caustic taste, though peculiarly offensive to most English palates, is much relished by the Russians, Poles,

Spaniards, and especially by the Jews. It is eaten with bread, and employed by way of seasoning to various dishes. The bulbs are extensively grown at Ovar in Portugal, for exportation to Brazil. Formerly the juice from the bulb was used by housewives for cementing broken glass and china.

The active properties of Garlic appear to depend on an essential oil, which is readily obtained by distillation with water. The odour of this bulb is so penetrating and diffusible, that even the external application of it to the soles of the feet, or any other part of the body, will cause the lungs to exhale its odour, and the taste may be perceived in the mouth. It may be also detected in the flesh, and even in the eggs, of fowls, geese, etc., that have eaten it. It is recommended by Dioscorides as a remedy for tape-worm, venomous bites, hoarseness, coughs, etc., and externally for many cutaneous diseases. Celsus, Rosen, Bergius, and others speak of its use in preventing the paroxysms of intermittents; and it has also enjoyed great reputation as a preservative against contagious diseases, more particularly the plague; hence it formed a principal ingredient in the "Four Thieves' Vinegar," and it was not less esteemed as a remedy when that fell disease had already commenced its ravages. In the *British Domestic Herbal* it is stated that during the prevalence of a very contagious fever in the vicinity of Somers Town and St. Giles's, the French ecclesiastics, who constantly used this plant in all their culinary preparations, visited hovels the most filthy and infectious with impunity, whilst the English ministers of the same religion were generally infected with the contagion, to which several of them fell victims.

Amongst other uses for which Garlic has been recommended may be mentioned that of a rubefacient. The bulb, bruised and mixed with oil or lard, has been applied externally to scrofulous tumours, gout, burns, etc. The juice rubbed on the spine of the back of children affected with whooping-cough, is said to be eminently beneficial; and inserted on cotton into the ear, it is a favourite domestic remedy for deafness, earache, and toothache.

Its use in asthma is thus described in the *British Domestic Herbal*: "Dr. Bowles, an English physician, much celebrated

in his time, employed Garlic as a secret remedy in asthma, and with considerable success. His method was to form a kind of preserve of the bulbs, or cloves, as they are called, by first boiling them till quite tender in a close vessel, then drying them carefully by means of a napkin. To the water in which they had been boiled, an equal quantity of the strongest vinegar was added, and to this as much refined sugar as was necessary to form a syrup, which was poured over the dried bulbs, put into an earthen jar, and carefully stopped for use. The dose was one or two of the bulbs to be taken in a morning, fasting, with one or two table-spoonfuls of syrup. This remedy gained great repute for the cure of asthma, and it appears deservedly."

The offensive odour of garlic may be in great measure counteracted by a judicious admixture of aromatics.

LXXXV.

TEUCRIUM CHAMÆDRYS, L. WALL GERMANDER.

Nat. Ord. LABIATÆ.

F. GERMANDRÉE, PETIT CHÊNE. *G.* GAMANDER.

Description.—Root perennial, slender, yellowish, somewhat creeping, furnished with short, delicate fibres. Stems branched, decumbent at the base, then ascending, simple, obsoletely 4-sided, hairy, 9 inches to a foot high. Leaves opposite, shortly petiolate, obtuse, spreading, ovate, approaching to wedge-shaped, smooth, pubescent, veined, bright green above, paler beneath, deeply serrate at the margin, and sometimes slightly lobed. Flowers on short peduncles, and are placed 2 or 3 together in the axils of the upper leaves, of which the uppermost, or bracts, are nearly entire at the margin. Calyx angular, hairy, ovate-turbinate, with 5, nearly equal, ovate-acuminate, ciliate teeth, purplish. Corolla reddish purple, much longer than the calyx, with a short, curved tube, and divided at the limb into 2 lips, the upper short and bipartite,

the lower 3-lobed, the middle lobe large, roundish. Stamens didynamous, much protruded, with slender white filaments, terminated by simple anthers, with 2 confluent, spreading cells. Ovary 4-parted; style filiform, longer than the stamens, surmounted by a bifid stigma. Fruit composed of four achenia, or small nuts, each containing a single seed, enclosed in the persistent calyx. (Plate XXII, fig. 2: (a) calyx; (b) corolla; (c) pistil.)

Distribution.—Europe, from Holland southwards, Western Asia. Found on old walls in England, Scotland, and in sandy fields in Ireland; but rare, and is considered to be a garden escape. Flowers July to September.

Etymology.—*Teucrium* was the name given in honour of Teucer, prince of Troy, who, according to Pliny, was the first to discover the medicinal qualities of some plant allied to this. It is called *Chamædrys* from the Greek *χαμαι*, on the ground, and *δρυς*, an oak, in allusion to the oak-like leaves; for the same reason it has obtained the names *Quercula* in Latin, *Petit Chêne* in French, and *Ground-oak* in English. In the *Herbier de Mayence*, published in 1485, it is called *Gamandrê*; hence the common French and English names of the plants.

Properties and Uses.—The plant has been used for tanning in those countries where it abounds. Sheep and goats will eat it, but other animals refuse it. Germander has been regarded as tonic, diuretic, and sudorific, and has been used in jaundice, fevers, dropsy, asthma, and other chronic diseases of the lungs. It has also been used as an anthelmintic, in scrofulous and scorbutic affections, and in gout. It was one of the ingredients in the celebrated antarthritic, or Portland powder. Prosper Alpinus states that the Egyptians employ it successfully in the cure of intermittent fevers, by taking a drachm of the powder an hour before the paroxysm.

LXXXVI.

TEUCRIUM SCORDIUM, Benth. WATER GERMANDER.

Nat. Ord. LABIATÆ.*F.* SCORDIUM. *G.* KNOBLAUCH DUFTENDER GAMANDER.

Description.—Root perennial, creeping, fibrous. Stem procumbent, branched, quadrangular, hairy, about a foot long. Leaves opposite, sessile, oblong, obtuse, downy, soft, nerved, deeply serrated, light green. Flowers few, mostly 2 in the axil of each leaf, pedunculate, and rather small. Calyx tubular, hairy, striated, with 5 nearly equal, ovate, acute teeth. Corolla small, pale purple; in other respects nearly resembling Wall Germander. (Plate XXIII, fig. 2: (a) calyx; (b) corolla, viewed sidewise; (c) the same, in front; (d) pistil; (e) anther, magnified.)

Distribution.—Europe, Northern Africa, Siberia, Western Asia to North-West Himalaya. In low, wet meadows and marshy places in the north-east and west of England, and in the south and west of Ireland, but is rare. Flowers July and August.

Etymology.—This plant was named Scordium from σκορδιον, derived from σκορδον, garlic, on account of its alliaceous odour. According to Lobel, it was first identified with the σκορδιον of Dioscorides by Pelissier, bishop of Montpellier, and Rondelet, professor of medicine at that place, about the year 1550. It has been called Garlic Germander.

Properties and Uses.—The foliage is eaten by sheep and goats, but refused by horses, swine, and cows; the latter, however, will eat it when pressed by hunger, in consequence of which, their milk is said to be imbued with the flavour of garlic. It was formerly used for placing among woollen articles to preserve them from the attacks of moth. The herb exhales a peculiar odour, somewhat resembling garlic, but combined with an aroma approaching to that of hops. It is rather bitter and pungent to the taste, and becomes disagreeable, and at length inodorous, on being long-kept.

The most ancient writers on therapeutics attribute to this plant extraordinary virtues as an alexipharmic, sudorific, and antiseptic; with reference to the latter quality, Galen asserts, that, on a field of battle, the bodies which lay on these plants were much slower in putrefying than the rest; and from this fabulous relation its antiputrescent character seems to have originated, and, most likely, its employment (with a host of other medicines) in the alexiterial and epidemic waters, Mithridatum, Theriaca, the Diascordium of Francastorius, etc., as a specific against the plague, contagious diseases in general, and gangrene. It has also been lauded in cases where there is want of tone in the stomach, and in flatulence, dropsy, anasarca, amenorrhœa, and humid asthma; likewise in various cutaneous diseases, and to expel intestinal worms. It has been applied as a topical stimulant, in the form of cataplasm, fomentation, or in powder, to atonic ulcers and hospital gangrene.

LXXXVII.

SOLIDAGO VIRGAUREA, L. GOLDEN-ROD.

Nat. Ord. COMPOSITÆ.*F.* VERGE D'OR. *D.* GOLDRUTHE, HEIDENWUNDKRAUT.

Description.—Root perennial, consisting of long simple fibres. Stem leafy, angular, striated, rough, somewhat downy, curved below, then erect, 1 to 3 feet long. Leaves alternate, acute, sharply toothed, harsh, covered with short rigid down, slightly dotted above, paler beneath; lower ones obovate or elliptical, on winged footstalks; upper lanceolate, sessile, nearly entire. Flowers in terminal and axillary clusters, forming a paniced leafy raceme. Involucre of closely imbricated, oblong, acute scales. Florets of the ray from 5 to 10, ligulate, 3-toothed, pistilliferous, bright yellow; those of the disk numerous, perfect, tubular, with 5 equal spreading segments. Filaments 5, hair-like, short; anthers united into a cylindrical tube. Ovary

oblong, with a filiform style, and 2 revolute stigmas. Fruit obovate, crowned with the sessile, hair-like pappus. Receptacle naked, nearly flat. (Plate XXII., fig. 3: (a) floret of the ray, magnified; (b) floret of the disk, magnified.)

Distribution.—Northern Temperate and Arctic Europe, Asia, Himalaya, and America. Frequent in woods and thickets in the British Isles. Flowers July to September.

Etymology.—The generic name is a derivative of *solida*, to unite, because of the vulnerary qualities of the plant. It was formerly called *Solidago Saracenica*, and was said to have been brought over by the Christians who returned from the Saracen wars. It received its specific name from the Latin *virga*, a rod, *aurea*, gold, in allusion to its racemes of yellow flowers.

Properties and Uses.—Both the flowers and leaves are highly recommended by Bechstein as affording a yellow dye superior to that obtained from weld or dyer's-weed (*Reseda Luteola*). The foliage is eaten by cattle in general. The odour of the recent herb when bruised resembles that of the wild carrot; and its taste is subastringent, bitter, and slightly aromatic.

This plant was first brought into notice by Arnoldus de Villa Nova, who highly extolled it as a remedy for stone in the bladder, and for its vulnerary qualities.

Gerard had a very great opinion of it as an application to bleeding wounds and ulcers, and he gives the following apposite account of its disuse: "I haue known the dry herbe which came from beyond the sea sold in Bucklersbury for halfe a crowne an ounce. But since it was found in Hampstead wood, euen as it were at our townes end, no man will giue halfe a crowne for an hundred weight of it; which plainly setteth forth our inconstancie and sudden mutabilitie, esteeming no longer of anything how pretious soeuer it be, than whilst it is strange and rare." He further says that "Saracens Consound is not inferiour to any of the woundherbes what-soeuer, being inwardly ministred or outwardly applied in ointments or oyles. With it I cured Master Cartwright, a gentleman of Grayes Inne, who was grievously

wounded into the lungs, and that by God's permission in short space."

In more recent times an infusion or decoction has been recommended in chronic diarrhoea and dysentery.

LXXXVIII.

CHENOPODIUM VULVARIA, L. STINKING GOOSEFOOT.

Nat. Ord. CHENOPODIACEÆ.

F. VULVAIRE. G. STINKENDER GÄNSEFUSS.

Description.—Root annual, small, fibrous. Stems diffuse, channelled, with procumbent branches, 6 to 12 inches long. Leaves numerous, small, ovate, entire, greasy to the touch, covered with a greyish, pulverulent, fetid substance. Flowers very small, lightish green, in dense clustered spikes in the axils of the leaves. Perianth single, inferior, deeply divided into 5, ovate, concave, permanent segments, membranous at the edges. Stamens 5, filaments subulate, anthers roundish 2-lobed. Ovary globose, supporting 2 short styles, terminated by obtuse stigmas. Fruit globose, depressed, clasped, but not entirely enveloped by the persistent calyx, and containing a single lenticular seed. (Plate XXI., fig. 4: (a) the flower; (b) the fruit.)

Distribution.—Europe, from Denmark southwards, Northern Africa. On waste places and road-sides in England, but rare in Scotland. Flowers August to October.

Etymology.—The generic name is derived from *χην*, *χηνος*, a goose, and *πους*, a foot, in allusion to the shape of the leaves in some of the species. It has also been called Garosmus and Vulvaria, from its fetid smell.

Properties and Uses.—The odour of the recent plant is extremely fetid, resembling that of putrid fish; the taste is herbaceous and nauseous. The ashes yield a large quantity of potash.

This plant was celebrated by many of our old physicians

for its efficacy in hysterical diseases. Needham recommends the leaves to be made into a conserve with sugar as a remedy in hysteria, and Fuller with the same intention prepared his *Electuarium hystericum*, with four ounces of the conserve and forty-eight drops of oil of amber; a piece to be taken the size of a chestnut. By other authors it has been recommended as antispasmodic and emmenagogue.

LXXXIX.

LITHOSPERMUM OFFICINALE, L. GROMWELL.

Nat. Ord. BORAGINÆÆ.

F. GREMIL, HERBE AUX PERLES. G. STEINSAME.

Description.—Root perennial, woody, tapering, whitish, fibrous. Stem erect, cylindrical, branched, hispid or hairy, 12 to 18 inches high. Leaves alternate, sessile, acute, nerved, greyish green, rough above, hairy beneath. Flowers in capitate cymes, small, strigose, on short leafy axillary branches. Calyx 5-cleft, the segments narrow, equalling the corolla, acuminate, hairy. Corolla funnel-shaped, pale yellow, its orifice naked; tube short; limb divided into 5 obtuse segments. Stamens 5, anthers oblong, included in the tube. Ovary 4-parted, style filiform, stigma obtuse, bifid. Fruit consists of 4, hard, polished, whitish brown nutlets (seldom more than 2 or 3 coming to maturity), seated in the persistent calyx. (Plate XXII., fig. 1: (a) calyx; (b) corolla, opened; (c) pistil; (d) fruit.)

Distribution.—Europe, Western Asia, Siberia, Dahuria; introduced into North America. Frequent in copses and hedge-banks in England, but rare in Scotland. Flowers June and July.

Etymology.—The generic name is formed from *γίθος*, a stone, and *σπέρμα*, a seed, on account of the stony hardness of the nuts. In like manner Gromwell is derived from the Celtic *graun*, a seed, and *mil*, a stone. It is also called Grey-mill and Grey Millet.

Properties and Uses.—The nuts have no smell, and merely a farinaceous taste. The seeds contain a small quantity of oily matter, but in other respects nearly resemble the cereal grains, for which they have even been proposed as a substitute. The lithontriptic virtues of these nuts appear to have been deduced from the fallacious doctrine of signatures; their stony consistence being accounted typical of their efficacy as dissolvents of stone in the human bladder. More modern writers, though they attach no credit to these illusory qualities, have considered the seeds as diuretic. A decoction of them, or of the roots, applied hot externally, has been recommended for relieving pain in the urinary organs.

XC.

NEPETA GLECHOMA, Benth. GROUND IVY.

Nat. Ord. LABIATE.*F.* LIERRE TERRESTRE. *G.* GUNDELREBE.

Description.—Root perennial, small, fibrous, creeping, sending out long runners. Stems creeping, with upright branches, slender, quadrangular, rather hairy, about a foot high. Leaves opposite, petiolate, downy, reniform, crenate; petioles of lower leaves long, channelled, hairy and spreading. Flowers 3 or 4 together in the axils of the leaves, on short peduncles, at the base of which are a few subulate bracts. Calyx short, tubular, striated, hairy, with 5 nearly equal acuminate teeth. Corolla purplish blue, bilabiate; tube much longer than the calyx; upper lip bifid, erect; lower lip 3-lobed, middle lobe large, emarginate, variegated near the palate, the side lobes narrower and shorter. Stamens didynamous, covered by the upper lip; anthers whitish. Ovary ovate, 4-cleft; style filiform, curved; stigma bifid, acute. Fruit composed of 4 achenes, or small nutlets, enclosed within the persistent calyx. (Plate XXII., fig. 4: (a) the fruit; (b) the calyx and pistil; (c) corolla, seen in front; (d) the calyx, opened to show the 4-parted ovary.)

Distribution.—Europe (Arctic), Northern Asia, Japan, Western Asia. Common in this country in hedge-banks and copses. Flowers March to June.

Etymology.—The name of *Glechoma* is derived from γληκων, given by the Greeks to a species of mint. This species was formerly called *Hedera Terrestis*, as now Ground Ivy, from a similarity in the form of the leaves to those of common ivy (*Hedera Helix*). It has received the vernacular names of Alehoof, Tunhoof, Gill-go-by-the-ground, and Cat's-foot.

Properties and Uses.—Ground Ivy has been used to clarify and preserve malt liquors, for which purpose it was much employed formerly; hence the names Alehoof and Tunhoof. The house at which such medicated beverage was sold was called a *gill-house*. Cows, swine, and goats refuse the plant, but sheep are fond of it, and horses eat it occasionally. It has been recommended as food for silkworms. It has a strong and aromatic odour when bruised, and is slightly acrid, warm, and bitter to the taste. It contains a small quantity of volatile oil, which is contained in small glandular dots on the under surface of the leaves.

Ground Ivy has been described as tonic, stomachic, aperient, diuretic, vulnerary, etc., and was considered a potent remedy in pulmonary and nephritic complaints, dropsy, dyspepsia, and colic. It is used by country people in the form of tea, sweetened with honey, sugar, or liquorice. Taken with fermenting ale, it has been recommended in gravel and other diseases of the kidneys.

It has been used in the forms of powder and infusion, but the expressed juice was considered the most effectual.

XCL.

AJUGA CHAMÆPITYS, Schreber. GROUND-PINE.

Nat. Ord. LABIATÆ.

F. IVETTE. G. SCHLAGKRAUT, GÜNSEL.

Description.—Root annual, descending, somewhat branched, fibrous. Stems several from the same root, spreading, branched, leafy, quadrangular, reddish purple, clothed with whitish hairs, and 6 to 12 inches high. Leaves in pairs at the joints of the stem, sessile, hairy, about an inch long, yellowish green, 3-parted to the middle, with linear revolute segments, lowermost broader and nearly entire. Flowers sessile, solitary, and axillary, shorter than the leaves. Calyx ovate-turbinate, hairy, 5-cleft; segments erect and acute. Corolla bilabiate, yellow, spotted with red; tube longer than the calyx; upper lip very small, bifid, erect; lower elongated, trifold, middle lobe largest, emarginate, obtuse. Stamens didynamous, bent towards the upper lip. Ovary superior, 4-parted, with a setaceous style, longer than the stamens, and an acute stigma. Fruit of 4 achenes, or small nutlets, enclosed in the persistent calyx. (Plate XXIII., fig. 1: (a) calyx; (b) corolla; (c) stamens; (d) pistil.)

Distribution.—Europe, from Belgium southwards, Northern Africa, Western Asia. Local in this country, occurring in chalky fields in some of the eastern and south-eastern counties. Flowers May and September.

Etymology.—Chamæpitys, the name by which this plant has been long known, is derived from *χαμαι*, on the ground, *πιτυς*, a pine, from the resemblance it bears in the form of its leaves and its balsamic smell to the pine-tree. It has been called provincially Herb-ivy, Field-cypress, and Forget-me-not.

Properties and Uses.—The flowers and leaves have been held in much repute for their efficacy in gout and rheumatic affections of the joints; hence it was called by the older botanists *Iva arthritica*, and formed an ingredient in the celebrated Portland-powder. Its reputed tonic, stomachic,

diuretic, and resolvent qualities have also recommended it in visceral obstructions, jaundice and intermittent fevers, paralysis, hysteric and hypochondriacal affections, and it has likewise been applied externally to ulcers and tumours.

XCII.

SCOLOPODENDRIUM VULGARE, Sm. HART'S-TONGUE.

Nat. Ord. FILICES.

F. SCOLOPENDRE, LANGUE DE CERF. *G.* HIRSCHZUNGE.

Description.—Rhizome perennial, furnished with numerous brown fibres. Fronds about a foot long, 1 to 2 inches broad, somewhat coriaceous, light vivid green, smooth, plane, oblong, acute, cordate at the base, entire, undulated at the margin. Stipes and midrib stout, clothed with subulate scales. Fructification on the back of the fronds, on each side of the midrib, in oblique lines of a yellowish brown colour, called *sori*. Involucre double, membranous, opening as it were longitudinally, turned back and concealed by the prominent capsules. Capsule 1-celled, stalked, globose, and furnished with an elastic ring, which opens and ejects the spores in the form of a fine powder. (Plate XXIV., fig. 1: (*a*) part of the frond, showing the *sori*; (*b*) a capsule, magnified; (*c*) the same, open.)

Distribution.—Europe from Gothland southwards, Northern Africa, Western Siberia, Japan, Western Asia, North-Western America. Common in most shady banks and copses in this country, producing its fructification in July and August. A very large number of varieties of this fern are in cultivation.

Etymology.—The generic name refers to the resemblance between the lines of fructification on the back of the frond and the insect called Scolopendra. Hart's-tongue, or, as it is sometimes called, Hind's-tongue, is expressive of the shape of the frond.

Properties and Uses.—The plant has a faint herbaceous, earthy smell, and a sweetish, subastringent taste. The ancient

physicians considered it a very valuable medicine, and freely invested it with astringent, alterative, diuretic, and vulnerary properties. Galen, among others, recommended it in diarrhoea and dysentery. It was also reckoned demulcent and pectoral, together, with golden and common maidenhair, wall-rue, and common spleenwort, called the five capillary herbs. Simon Pauli mentions that the Germans used it with advantage, infused in beer, against enlargements of the spleen and hypochondriacal affections. Ray recommends a drachm of the powdered leaves, in any convenient vehicle, for palpitations of the heart, hysterical affections and convulsions.

XCIII.

SISYMBRIUM OFFICINALE, L. HEDGE-MUSTARD.

Nat. Ord. CRUCIFERÆ.

F. VÉLAR, TORTELLE. G. WEGSENF, HEDERICH.

Description.—Root annual, tapering, furnished with long fibres. Stem erect, cylindrical, leafy, pubescent, with spreading branches, from 1 to 2 feet high. Leaves alternate, petiolate, somewhat villous, scabrous beneath, deeply divided on both sides into 2 or 3 oblong, toothed lobes, terminal one very large, roundish in the lower leaves, oblong in the upper. Flowers in long, terminal, spike-like racemes; pedicels very short and erect. Calyx very small, composed of 4 oblong, concave, spreading, deciduous sepals. Petals 4, very small, pale yellow, oblong obtuse, unguiculate, entire. Stamens 6, tetradynamous; filaments subulate, erect; anthers cordate. Ovary linear, sessile; style short; stigma clavate, emarginate. Silique, or pod, erect, close-pressed to the main stem, roundish, subulate, with concave valves, and a membranous, bilocular dissepiment. Seeds small, oblong, dingy yellow, arranged in a single row. (Plate XXIII, fig. 3: (a) radical leaf; (b) calyx; (c) petal; (d) stamens).

Distribution.—Europe, Western Asia to the Himalaya

Northern Africa. Introduced into the United States. In hedgerows and waste places in this country. Flowers June to July.

Etymology.—Sisymbrium was the name given by the Greeks to a species of mint, or some mint-like plant, while this species was called by them *ερωσμουον*. It has received the provincial name of Bank-cress.

Properties and Uses.—Hedge-mustard has been used as an early pot-herb, but it has not much to recommend it. It is relished by sheep and goats, but horses, cows, and swine refuse it.

The herb is almost inodorous, with a slight acrid, warm flavour, resembling that of nasturtium; and the seeds are pungent like mustard. Dioscorides recommends the seeds, taken in honey, for diseases of the chest, purulent spittings, coughs, and jaundice; also as an external application to cancers, tumours, etc. The herb has been most celebrated for its incisive and expectorant properties; hence the good effects attributed to it by Lobel and others, in asthma and old coughs, as also in restoring the voice and removing hoarseness, for which purpose a syrup was prepared from it, which bore the name of *syrupus cantatoris*, or singer's syrup. Rondeletius informs us that hoarseness occasioned by loud speaking was cured by this means in three days. Ettmuller commends the seeds of Hedge-mustard as an excellent medicine in suppression or difficulty of urine. The plant has also been used externally in the treatment of cancer and tumours.

XCIV.

LAMIUM PURPUREUM, L.

PURPLE HEDGE-NETTLE,* OR DEAD-NETTLE.

Nat. Ord. LABIATE.

F. LAMIER POURPRÉE. G. PURPUR TAUBNESSEL.

Description.—Root annual, slender, fibrous. Stems curved at the base and branched, then erect, naked, but thickly clothed with leaves at the summit, quadrangular, nearly smooth, 6 to 9 inches high. Leaves cordate, obtuse, crenate-errate, stalked, clothed with silky hairs, the uppermost with purplish tinge. Flowers in crowded whorls at the top of the stem. Calyx campanulate, 10-ribbed, with 5 awn-tipped teeth, often purplish. Corolla ringent, purplish red; upper lip entire, arched; lower patent, obcordate, 2-lobed, with one tooth on each side. Stamens 4, didynamous, covered by the upper lip, anthers oblong. Ovary 4-parted, style filiform, stigma bifid, spreading. Fruit composed of 4 achenia, somewhat triangular, and convex on one side, seated in the persistent calyx. (Plate XXIII., fig. 4: (a) corolla, magnified; b) anther; (c) calyx and pistil.)

Distribution.—Europe, Canaries, Siberia, Western Asia. Introduced into North America. Very common in this country in fields and waste places. Flowers April to October.

Etymology.—Various etymologies of the word *Lamium* are given by authors. Some derive it from *λαμος*, the throat, in account of the shape of the flower; others from *Lamia*, a celebrated sea-monster or sorceress, whose visage it was supposed to emulate. This species is called provincially Red Archangel Nettle.

Properties and Uses.—The plant diffuses a heavy and disagreeable odour, especially when bruised, and a nauseous,

* Though this plant is here designated Purple Hedge-Nettle, we can find no reason for its being so called. The Hedge-Nettle is *Stachys sylvatica*. The only reason the name has been retained here is, to preserve the proper sequence of the chapters and the reference to the plates.—(J. R. J.)

herbaceous, subastringent taste. A decoction has been recommended in dysentery, pleurisy, scrofula, etc. It was also esteemed useful for external application to swellings, ulcers, wounds, burns and scalds. It is occasionally eaten by horses, goats, and sheep, but refused by cows. The young shoots are used as greens in some parts of Northern Europe.

XCV.

HELLEBORUS NIGER, L.

BLACK HELLEBORE, OR CHRISTMAS ROSE.

Nat. Ord. RANUNCULACEÆ.

F. ELLÉBORE NOIR, ROSE DE NOËL. *G.* SCHWARZE NIESSWURZ.

Description.—Root of numerous thick, fleshy, descending fibres, proceeding from a large, transverse, knotted stock, externally nearly black, internally yellowish; scapes naked, thick, cylindrical, 4 or 5 inches high, simple or bifurcate at the summit, with 1 or 2 terminal flowers subtended by 2 or 3 ovate bracts. Leaves all radical, on long petioles, large, smooth, coriaceous, deep green, often spotted with reddish brown, pedate, with ovate, lanceolate, acute, serrated leaflets, expanding with the scapes, or immediately after them. Calyx of five large, roundish, obtuse, petaloid sepals, white, often tinged with rose colour. Petals very short, tubular, 2-lipped, and nectariferous. Stamens very numerous; filaments capillary, rather longer than the petals; anthers yellow, roundish. Carpels about 6, surmounted by as many subulate styles and roundish stigmas. Fruit of 5 or 6 coriaceous pericarps or follicles, which are ovate, compressed, mucronate laterally at the summit, arcuate at the border, opening by 2 valves, and containing many black shining seeds. (Plate XXIV., fig. 2: (a) tubular petal (nectary of Linneus); (b) pistils.)

Distribution.—Southern and Eastern Europe, frequently cultivated in English gardens for the sake of its handsome flowers, which are produced from December to February.

Etymology.—Black Hellebore was, for a long time, thought to be the *ελεβορος μελας* of Hippocrates; but Schroff has endeavoured to show that, of several species growing in Greece and Asia Minor, the medicinal properties of *H. orientalis* approach nearer to those of the ancient descriptions than does *H. niger*.

Properties and Uses.—"Black Hellebore produces a knotty, fleshy, brittle rhizome, which creeps and branches slowly, forming in the course of years an entangled, interlacing mass, throwing out an abundance of stout, straight roots. Both rhizome and roots are of a blackish brown, but the younger roots are of lighter tint, and are covered with a short woolly pomentum. In commerce the rhizome is found with the roots more or less broken off and detached. It is in very knotty regular pieces, 1 to 2 or 3 inches long, and about $\frac{2}{10}$ to $\frac{3}{10}$ of an inch in diameter, internally whitish, and of a horny texture. If cut transversely (especially after maceration), it shows a circle of white woody wedges, 8 to 12 in number, surrounded by a thick bark. The roots are unbranched, scarcely $\frac{1}{10}$ of an inch in diameter. The younger, when broken cross, exhibit a thick bark, encircling a simple woody cord; in the older, this cord tends to divide into converging wedges, which present a stellate appearance, though not so distinctly as in *Actæa*. The drug when cut or broken has a slight odour like that of senega. Its taste is bitterish and slightly acrid."—*Pharmacographia*, p. 2.

The root of Hellebore has been famous from time immemorial, as a remedy for insanity. From its abundance in the Isle of Anticyra, arose the proverb, *Naviga ad Anticyras*, "Take a voyage to Anticyras," which was the advice given by the ancients to those who had lost their reason. Thus Horace, who considered avarice a mental disease, says:—

"Danda est ellebori multa pars maxima avaris:
Nescio an Anticyram ratio illis destinet omnem."

Sat. iii., lib. 2.

Its repute in maniacal disorders appears to have arisen from its drastic purgative property of expelling the *atrabilis*, from which such maladies were invariably thought to originate;

but they doubtless attributed some efficacy to the other medicines combined with it, which tended to modify its violent action. We are told that the ancients gave it only to persons of robust constitutions, and never to the young or the aged. The fibrous portions of the root alone were used, and these were macerated in water, and the bark carefully separated, which was dried and powdered.

"Ettmuller states that an apple, particularly sweet, was chosen, and stuck full of the fibres of Hellebore root, then roasted under hot embers; the fibres were then withdrawn, and the apple eaten by the patient, which operated mildly, but effectually."

Waller, in his *British Domestic Herbal*, gives the following observations on the effect of Hellebore root as an errhine:—

"In the dépôt for French prisoners of war at Norman Cross, in the year 1806, a peculiar disease, called *hemeralopia*, was very prevalent among them. The symptoms which distinguish this disease are, that the patient becomes by degrees perfectly blind, from the moment of sunset till the re-appearance of the bright luminary next morning. This disease affected a great number of the prisoners, who were obliged to be led about by their comrades immediately after sunset, and all of them at the same time were labouring under symptoms of extreme dyspepsia. After a variety of treatment ineffectually applied, the powder of black Hellebore was given them as a snuff. As they were most of them attached to the use of snuff, and had been for a long time deprived of it, they took the Hellebore with avidity, and generally recovered from their hemeralopia in the course of a very few days, and the dyspeptic symptoms were at the same time greatly relieved. There is no doubt that in many other affections of the head the same treatment would be found extremely efficacious, and is well worthy of trial in many chronic diseases of the eyes, particularly in the early stage of *gutta serena*."

The properties of the Hellebore vary much according to age. When recent, it is acrid and poisonous, and produces vesication of the skin; properly dried, it causes vomiting and purging, excites sneezing, and provokes the menstrual evacua-

tion, etc., but after being long kept, it retains merely a slight purgative virtue.

"In British medicine its employment is nearly obsolete, but the drug is still imported from Germany and sold for the use of domestic animals."—*Pharmacographia*, p. 3.

With regard to its poisonous properties, its effects are those of a violent acid and narcotic. Orfila found that two or three drachms of the root, swallowed, killed a dog in a few hours; and a smaller quantity, applied to a wound, produced the same effect more speedily. A decoction of an ounce of the root in water, caused death in eight hours. Schlabel relates that ten grains of the extract, introduced into the windpipe, killed a rabbit in six minutes. The chief symptoms were violent efforts to vomit, giddiness, palsy of the hind legs, and insensibility.

XCVI.

CONIUM MACULATUM, L. HEMLOCK.

Nat. Ord. UMBELLIFERÆ.

F. CIGUË. *G.* SCHIERLING.

Description. — Root biennial, somewhat fusiform and branched, whitish, about the thickness of the little finger, 8 to 10 inches long, exuding, when young, a milky juice. Stem erect, cylindrical, smooth, fistulous, striated, light shining green, spotted with purple or brown, often covered with a bluish exudation, 3 to 5 feet high, much branched upwards. Lower leaves very large, tripinnate, alternate, on long striated concave petioles; upper leaves bipinnate, opposite the branches; leaflets pinnatifid, with lanceolate, obtuse, inciso-serrate segments, shining green above, paler beneath. Flowers in umbels of many spreading rays, with a general involucre of about 5 leaves, and a partial one of 3 or 4 lanceolate leaves, placed externally on one side. Calyx an obsolete margin. Petals 5, white, obcordate, with a short inflexed point, outer slightly radiant. Stamens 5, filaments white, capillary; anthers roundish,

scarcely as long as the corolla. Ovary inferior, ovate, green, crowned by the whitish disk, supporting 2 filiform reflexed styles, and obtuse stigmas. Fruit brownish when ripe, ovate, slightly compressed laterally, dividing into 2 carpels, each of which is marked with 5 prominent undulated or crenate ridges, the channels much striated, and without vittæ. Seeds deeply grooved in front. (Plate XXIV., fig. 4: (a) entire flower, magnified; (b) fruit.)

Distribution.—Europe, Northern Africa, Siberia. Introduced in North America. Not infrequent in waste places and on road-sides in this country. Flowers June and July.

Etymology and History.—The name is derived from *κωνος*, a top, "whose whirling motion resembles the giddiness produced in the human brain by a poisonous dose of the juice of this plant."

Common Hemlock is the *κονειον* and *Cicuta* of the ancients. It corresponds in many particulars with the description given by Dioscorides and Pliny in their respective works.

The famous Hemlock potion of the Greeks, which was used to put criminals to death, was undoubtedly composed principally of the juice of this plant. On the other hand, as the term *cicuta* was also applied to that part of fistulous stems between the joints, so *conium* appears to have denoted more than one poisonous plant, which gives a colour to the opinion that the death-drinks of the Greeks were composed of the juices of several pernicious vegetables. Theophrastus relates, that a certain Thrasyas boasted of having discovered a potion, compounded of the juice of Conium, poppy, etc., which would destroy life without pain; and Ælian tells us, that the Cean old men, when they had become useless to the state and tired of the infirmities of life, invited each other to a banquet, and having crowned themselves in festive mood, drank the Conium, and terminated their existence. The tranquility maintained by Socrates, after swallowing the deadly potion decreed by the Areopagus, will scarcely accord with the known effects of Hemlock-juice, but that it was an ingredient in the fatal cup seems exceedingly probable, as the plant is very common in Greece, and a southern climate appears greatly to its energetic properties.

Properties and Uses.—The recent plant has a disagreeable odour, resembling that of mice or cat's urine. The odour of the properly dried leaves is strong, heavy, and narcotic, and the taste slightly bitter and narcotic. Geiger, in 1831, obtained from the fruits of Hemlock a poisonous alkaloid, which he named *conine*, or *conia*. The root, leaves, and especially the juice of Hemlock, were in former times considered softening, resolvent, anodyne, etc., and were employed externally in affections of the eyes, tumours, rheumatism, gout, and similar diseases.

It is chiefly, however, to the enterprising Baron Störck, that we are indebted for a knowledge of the therapeutical effects of this important plant. Since his time (1760) it has been much employed in medicine; and though some of his statements are doubtless exaggerated, many of them have been confirmed. He employed it in various indurations of the viscera, scirrhus, ulcers, tumours, cataract, gout, diseased bone, syphilis, leucorrhœa, jaundice, phthisis, etc.

"The extreme uncertainty, and even inertness, of its preparations, which had long been known to physicians, and had caused its rejection by many, have been recently investigated by Harley (*Pharmaceutical Journal*, vol. viii., 1867, and vol. ix., 1868). The careful experiments of this physician show what are the real powers of the drug, and by what method the active properties may be utilized."—*Pharmacographia*, p. 266.

At the present time, Hemlock is occasionally prescribed on account of its sedative action on the motor nerves. The fruits are the best source of the alkaloid *conine*, and were introduced into British medicine in 1864, in place of the dried leaves, for making the tincture. This tincture, however, which is also prepared from the fruits, is much inferior to the preserved juice of the plant. It has been proved that the unripe fruits possess the peculiar properties of the plant in a greater degree than any other part. With regard to the poisonous properties of Hemlock, asses, sheep, and goats eat the foliage without inconvenience, but it is reported to be noxious to kine; and dogs, wolves, rabbits, etc., are very readily destroyed by it. Several birds, and thrushes in particular, feed on the fruit.

Orfila found that an ounce of the extract of the leaves destroyed a dog in forty-five minutes, and twenty-eight grains, introduced through a vein, killed another in two minutes.

Several cases are recorded of the deleterious effects of this plant on man. Dr. Watson mentions two cases in which it proved fatal. The sufferers were two Dutch soldiers, who had taken the leaves mixed with other herbs in broth; they were seized with giddiness, coma, convulsions, and death. Agasson speaks of a man who, after taking a poisonous dose, was affected with convulsions in the upper part of the body, while the inferior extremities were paralysed. In others he remarked furious delirium. On examination after death, the vessels of the head have been found much congested, and the blood remarkably fluid.

Very different accounts are given of the properties of the roots of this plant. Ray states, that three or four ounces of the root have been swallowed without any remarkable effect. Mr. Curtis speaks of a gentleman who had some of the large roots boiled, and found them as agreeable eating, at dinner with meat, as carrots. On the other hand, Störck relates, that a drop or two of the milky juice applied to his tongue produced great pain and swelling of that organ, and for some time deprived him of the power of speech. Orfila gave two ounces of the juice, obtained from three pounds of the fresh root, to a dog, without any remarkable effects; while Wepfer relates the case of two monks, who became raving mad after eating the roots; and Vicat mentions an instance of a vine-dresser and his wife, who mistook the roots for parsnips, and after partaking of them at supper, awoke in the night delirious, knocking themselves rudely against the walls of the room. The only way in which these discordant statements can be reconciled, is by remembering the influence of climate. Fee informs us, that in Russia and the Crimea Hemlock is inert and eatable, and that in the South of Europe it is extremely poisonous. Soil and situation, and time of year, have also an influence on this plant, as on the colchicum and others.

XCVII.

EUPATORIUM CANNABINUM, L. HEMP-AGRIMONY.

Nat. Ord. COMPOSITÆ.

F. EUPATOIRE, HERBE DE SAINTE CUNEGONDE. *G.* WASSERHANF,
KUNIGUNDENKRAUT.

Description.—Root perennial, oblique, moderately thick, furnished with many whitish fibres. Stem erect, cylindrical, tomentose, green, tinged with purple, full of white pith, branched, 3 to 4 feet high. Leaves shortly petiolate, opposite, divided into 3 or 5 lanceolate lobes; the middle lobe longest, ash-coloured green, slightly pubescent on the upper surface. Flowers very numerous, thickly crowded in terminal corymbs. Involucre composed of oblong, obtuse, imbricated scales, coloured at the summit; for the most part forming calyces, which enclose about 5 salient florets. Corollas uniform, tubular, perfect, with a regular 5-lobed limb, pale reddish purple. Filaments capillary, very short, anthers united into a tube. Ovary oblong, small, style filiform, longer than the corolla, deeply cleft; stigmas downy, spreading. Fruit oblong, angular, crowned by the sessile, pilose pappus. Receptacle small and naked. (Plate XXV., fig. 1: (a) group of five flowers, detached from the corymb; (b) floret, isolated; (c) fruit.)

Distribution.—Europe, Siberia to Japan, Western Asia to the Himalaya, Northern Africa. It flourishes in Britain on river banks and moist places. Flowers July to September.

Etymology.—The name Eupatorium, according to Pliny, was given in honour of Eupator Mithridates, King of Pontus, who first discovered its medicinal properties. It is uncertain whether this plant was known to the ancients; it appears not to be the Eupatorium of the Greeks nor of Avicenna.

Properties and Uses.—The leaves, with the addition of log-wood boiled in a solution of green vitriol, yield a good black colour. Dambourney obtained a yellow dye by making a decoction of the whole plant. It is not eaten by any animal except the goat.

Hemp-agrimony has a strong odour, somewhat resembling that of umbelliferous plants, such as wild parsnip. Every part of the plant, and especially the root, has a bitter, pungent, and aromatic taste; but the leaves have most bitterness.

Tournefort speaks highly of the efficacy of this plant in obstructions of the viscera, intermittent fevers, and dropsy. Boerhaave calls it *Rusticorum Panacea*, and states that the turf-diggers in Holland use it with great benefit in jaundice, scurvy, foul ulcers, and those swellings of the feet to which they are much exposed. It has also been applied externally, in the form of a cataplasm, to various tumours, particularly hydrocele, and to ulcers; and the expressed juice, united with vinegar and common salt, has been a favourite application to some cutaneous diseases. For internal application, the dried leaves have been used in the form of tea.

XCVIII.

HYOSCYAMUS NIGER, L. HENBANE.

Nat. Ord. SOLANACEÆ.*F.* JUSQUIAME. *G.* BILSENKHAUT.

Description. — Root annual, thick, fusiform, wrinkled, somewhat branched, brown externally, whitish within. Stem erect, cylindrical, branched, covered with clammy woolly hairs, 1 to 2 feet high. Leaves large, alternate, amplexicaul, soft, woolly, clammy, ovate-lanceolate, acute, sinuated, and irregularly lobed. Flowers nearly sessile, terminating the stem and branches in a long leafy spike, all turned in one direction, and somewhat pendulous. Calyx tubular, 5-cleft, veined, persistent. Corolla funnel-shaped, 5-lobed; tube nearly white, purplish at the orifice; limb pale yellow or straw colour, reticulated with brownish purple veins. Filaments 5, subulate, downy at the base; anthers cordate, purple. Ovary roundish; style filiform, purple, as long as the stamens; stigma capitate. Capsule ovate, with a furrow on each side, 2-celled, opening

by a lid, and firmly inclosed in the calyx. Seeds numerous, obovate, curved, brown, hard, covered with minute depressions. (Plate XXIV., fig. 3: (a) calyx; (b) corolla, opened; (c) pistil; (d) capsule, detached from the calyx.)

Distribution.—Europe, Northern Africa, Siberia, Dahuria, Western Asia to North-Western India. Common in this country in sandy waste places near towns and villages, especially near the sea. Flowers June to August.

Etymology.—The generic name is compounded of *υς*, *υος*, a hog, and *κναμος*, a bean, the fruit being eaten with impunity by hogs.

Properties and Uses.—The lurid appearance, and heavy odour of this plant, together with its clamminess to the touch, seem to indicate its noxious qualities. The odour somewhat resembles that of the black currant, but it is stronger and more disagreeable. The herb is almost insipid to the taste, and the root sweetish. The leaves when burnt have somewhat the odour of tobacco, and they sparkle with a deflagration like nitre. Geiger and Hesse discovered in this plant, in 1833, a substance which they named *hyoscyamine*.

Henbane was well known to the ancients, as appears from the writings of Dioscorides, but little use appears to have been made of it except as an occasional topic. It has been famous, however, for its supposed use among fortune tellers, sorcerers, etc.; for from the leaves was prepared the sorcerer's ointment, and from the root the celebrated anodyne necklaces, "to be hung about children's necks, to prevent fits and cause an easy breeding of the teeth." A very different quality is attributed to the seeds of Henbane by a German writer in the *Ephemerides Germ.* vii., viii. *decur.* 3, p. 106: he states that the fumes of the seeds, proceeding from a stove, caused a violent quarrel between a man and his wife who had previously lived in the utmost harmony. Celsus recommends the leaves to be made into a collyrium with yolk of egg, and the seeds as an ingredient in pills for procuring sleep. To Störck, however, almost exclusively belongs the merit of discovering the true character and value of this plant.

"Though a remedy undeniably potent, Henbane in the first

half of the last century had fallen into disuse. It was omitted from the London pharmacopœias of 1746 and 1788, and restored only in 1809."—*Pharmacographia*, p. 417.

It is now used as a sedative, or anodyne, and is applied in the forms of tincture or extract. Hyoscyamine has a similar effect to atropine in powerfully dilating the pupil of the eye. The dried leaves, smoked like tobacco, is a popular remedy for toothache. Two varieties of Henbane, known as the annual and biennial, are cultivated by herbalists.

With regard to the poisonous properties of the plant, goats, sheep, and swine are said to eat it with impunity; and Renard states, that horse-dealers are accustomed to mix the seeds with oats in order to fatten their horses. It is injurious to stags, and fatal to most birds, especially the gallinaceous tribe; also to fishes, and to nearly all insects, except one or two beetles which feed upon it. The smell is said to drive away rats. According to the experiments of Orfila, the juice of an extract procured from the leaves, stems, and especially the root, produces in animals a state of sopor.

The whole plant appears to be poisonous to man; Sir J. Smith, however, and Professor Martyn assert that they have swallowed the seeds without inconvenience, while several other writers mention instances of their dangerous and even fatal effects. Choquet describes the effects of Henbane on two soldiers who ate the young shoots dressed with olive oil. They soon experienced a sensation as if the ground were reeling beneath them; they had a stupid appearance, and their limbs were swollen; subsequently the eyes became haggard, the pupil excessively dilated, and the sight dull and fixed; the pulse was small and intermittent, the breathing difficult, the jaw locked, and the mouth distorted by the *risus sardonius*; there was also that union of delirium and coma termed typhomania: the limbs were cold and palsied, the arms agitated by convulsive movements, and to all these alarming symptoms was added carphologia. By the exhibition of emetics and purgative lavements, one of the men was soon relieved; the other continued delirious until the next day, but by means of frequent doses of vinegar, and strong purgatives, he recovered. Many similar cases are recorded.

XCIX.

PARIS QUADRIFOLIA, L. HERB-PARIS.

*Nat. Ord. LILIACEÆ.**F. PARISETTE, RAISIN DE RENARD. G. EINBEERE, FUCHSTRAUBE.*

Description.—Rhizome perennial, creeping, fleshy, somewhat jointed, furnished with a few fibres. Stem erect, simple, cylindrical, smooth, naked below, obsoletely striated, about a foot high. Leaves generally 4 in a whorl, towards the summit of the stem, ovate, acute, entire, 3-nerved, deep dull green, sessile, and spreading horizontally. Peduncle terminal, erect, 1-flowered, shorter than the leaves. Calyx of 4, pale green, linear-lanceolate, acute, reflexed, persistent sepals. Corolla of 4 linear-subulate, yellowish green, reflexed petals, rather shorter than the calyx. Stamens 8, filaments subulate, anthers long, linear, 2-celled, yellowish, attached to their middle. Ovary superior, roundish, dark purple, supporting 4 spreading styles, shorter than the stamens, with simple stigmas, downy above. Fruit a globose berry, obsoletely 4-sided, purplish black, shining, about the size of a small cherry, 4-celled, each containing several ovate globose seeds arranged in 2 rows. (Plate XXV., fig. 2: (a) the flower seen in front with its sepals, petals, and stamens; (b) the pistil; (c) the berry; (d) a vertical section of the same to show the seeds; (e) seed.)

Distribution.—Europe (Arctic), Siberia, Western Asia. In woods in some parts of England and Scotland, but is local. Flowers May and June.

Etymology.—The generic name is supposed to be derived from *par, paris*, equal, in allusion to the regularity of the parts of the flower and fruit, the number four prevailing. In addition to the term Herb-paris it has also been called One-berry and True-love. Gerard says, "Herbe-paris hath foure leaues directly set one against another in manner of a Burgundian crosse or true-loue knot; for which cause among the antients it hath been called Herbe True-loue."

Properties and Uses.—Bohmer asserts that the dried leaves

of this plant impart a fine yellow colour to yarn or linen cloth previously soaked in alum water. The foliage is eaten by goats and sheep, but refused by horses, cows, and swine. The berries are poisonous to poultry.

Herb-paris ranks with the acid narcotics, and if taken into the system may produce effects similar to colchicum, fox-glove, etc. The berries are said to have proved noxious to children. It was recommended by Tragus, Camerarius, and other of the old writers, as an excellent remedy, in the form of cataplasm, to inflammatory tumours, cancers, etc. The berries were used for the same purpose, and were likewise esteemed beneficial in diseases of the eyes, by the peculiar induction of those who believed in signatures—the dark purple berry having some resemblance to the pupil of the eye.

Linneus recommends the root as an emetic in lieu of ipecacuanha, and it has also been used in various other ways. Though the rootstock is known to be purgative, it is not now used in medicine.

C.

GERANIUM ROBERTIANUM, L. HERB-ROBERT.

Nat. Ord. GERANIACEÆ.

F. GERANION, BEC-DE-GRUE ROBERTIN. *G.* RUPRECHTSKRAUT.

Description.—Root annual, slender, branched, fibrous, yellowish white. Stems about a foot high, trailing, much branched at the base, hairy, jointed, of a reddish hue, brittle, shining. Leaves opposite, petiolate, 3 and 5-parted; leaflets trifid, pinnatifid; segments shortly mucronate, tinged with red, shining, and sprinkled with whitish hairs; stipules short, acute, enlarged at the base. Flowers axillary, two together on a bifid peduncle, longer than the petioles. Calyx hairy, striated, angular, ventricose, composed of 5 lanceolate, mucronate sepals, of a reddish hue. Corolla of 5 regular, entire, oblong, spreading petals, twice as long as the calyx, bright roseate

purple, streaked with white lines. Stamens 10, filaments united at the base, 5 alternately shorter, with elliptical 2-celled anthers; at the base of the longer filaments are 5 nectariferous glands. Ovary roundish, 5-lobed, style subulate, stigmas cylindrical, recurved. Capsules or carpels 5, reticulated and wrinkled in their upper half, and furnished with long naked awns, separating in a spiral manner from the base to the apex of the common axis; each containing an oblong, smooth seed. (Plate XXV., fig. 3: (*a*) calyx, stamens, and pistils; (*b*) petal; (*c*) tube of the stamens, opened; (*d*) the five capsules, separating from the common axis; (*e*) one of the capsules or carpels.)

Distribution.—Europe (Arctic), Northern Africa, Siberia, Western Asia to North-Western India. Frequent in waste places and thickets in this country. Two or three varieties are known. Flowers May to September.

Etymology.—The name of the genus, the *γερανιον* of the Greeks, is derived from *γερανος*, a crane, in allusion to the shape of the fruit, which has some resemblance in form to the beak of that bird.

Properties and Uses.—Herb-Robert has been employed in some parts of the Continent for tanning; and a yellow dye, it is said, may be obtained from the leaves. According to Linneus, it is eaten by horses and goats, and occasionally by cows, but is refused by sheep and swine. He also states that the bruised herb drives away bugs. It has been much used by farmers as a remedy for the staling of blood and the bloody flux in cattle.

The recent plant has a strong peculiar odour, resembling that of the dead-nettle or wood-strawberry, but more powerful and less pleasant; and a slightly bitter, saline, and austere taste. It was formerly much celebrated for its vulnerary powers, and as being efficacious in hemorrhages, gravel, jaundice, scrofula, etc. It has also been recommended by some of the old physicians in intermittent fevers, and for outward application in tumours, cancers, ulcers, etc.

CL

PEUCEDANUM OFFICINALE, L.

HOG'S-FENNEL, OR SEA SULPHUR-WORT.

Nat. Ord. UMBELLIFERÆ.*F.* PEUCEDAN, FENOUIL DE PORC. *G.* HAARSTRANG.

Description.—Root perennial, fusiform, thick, long, dark colour externally, whitish within, containing a fetid resinous juice. Stem erect, cylindrical, striated, branched, smooth, leafy, tough, about 3 feet high. Leaves long, rigid, divided 5 or 6 times successively into 3 leaflets. Segments linear, nearly flat, acute, flaccid, entire. Flowers in large, many-rayed, concave umbels, with a general and partial involucre, of a few setaceous, deciduous leaves. Calyx consists of a 5-toothed, inflexed margin. Petals 5, obovate, equal, with an acute inflexed point, yellow. Stamens 5; filaments capillary, longer than the petals, tipped with roundish anthers. Ovary oblong, supporting two small recurved styles, terminated by obtuse emarginate stigmas. Fruit broadly elliptical, tawny. (Plate XXV., fig. 4: (a) entire flower, magnified; (b) calyx, ovary, and styles; (c) the fruit, somewhat magnified; (d) the two carpels separating at maturity.)

Distribution.—Europe from Belgium southwards. A rare British plant, occurring, in salt marshes, only in the south-eastern part of the island. Flowers July to September.

Etymology.—The genus takes its name from the *πευκεδανον* of Dioscorides and the other Greek writers, which is supposed to be identical with this plant; so-called from *πευκη*, a pine-tree, in allusion to the bituminous odour of the root. This odour has also been compared to that of sulphur, which, together with the yellow colour of the juice, has suggested the name Sulphur-wort. It has also been called Horestrong, Horestrange, and Harestrong, corruptions apparently of the German Haarstrang.

Properties and Uses.—The fresh root has a strong, fetid, sulphureous smell, and a heavy, unctuous, subacid, bitterish taste. The roots wounded in spring, exude a large quantity of

yellow juice, which soon concretes into a hard gum-resin, having all the sensible properties of the plant.

The root was a favourite remedy with Hippocrates and his immediate successors, and was recommended in coughs, phlegmatic obstructions of the lungs, nephritic pains, flatulencies, and difficult labours, and externally in hemicrania, ulcers, and painful tumours.

The resin exuded by the root has been recommended as a substitute for ammoniacum and galbanum.

CII.

ILEX AQUIFOLIUM, L. HOLLY.

Nat. Ord. ILLICINEÆ, OR AQUIFOLIACEÆ.

F. HOUX. G. STECHPALME.

Description.—A small evergreen tree, 4 to 30 feet high, much branched, the young shoots very smooth, pliant, of a fine green colour; bark ash-coloured, very compact; wood hard, heavy, yellowish-white, darker towards the centre. Leaves persistent, alternate, petiolate, coriaceous, deep shining green, ovate, undulated, and furnished at the margins with strong sharp spines. Flowers small, numerous, on short peduncles, somewhat umbellate, springing from the axils of the leaves. Calyx small, slightly hairy, mostly 4-toothed. Corolla rotate, in 4 deep divisions, of a whitish colour. Stamens 4 (sometimes 5, and then the other parts of the flower have a corresponding development), spreading, with subulate filaments, attached to the base of the corolla. Ovary sessile, 4-celled, and terminated by 4 sessile obtuse stigmas. (The pistil in some flowers is altogether wanting.) Fruit a shining, scarlet berry, nearly spherical, and includes 4 bony, channelled nuts, each containing a single seed. (Plate XXVI., fig. 1: (a) an entire flower of the natural size; (b) calyx and pistil; (c) the berry, with part of the fleshy substance removed, to show the 4 nuts; (d) a nut, isolated.)

Distribution.—Europe from Southern Norway to Turkey, and the Caucasus, Western Asia. In copses and woods in this country, and is frequently planted as an ornamental shrub. Flowers May to August.

Etymology.—The etymology of the term *Ilex* is rather uncertain. *Théis* derives it from *ac*, a point, in Celtic. The specific name *Aquifolium* is derived from *acus*, a point, and *folium*, a leaf, in allusion to the spiny leaves. Holly has received the provincial name of Holme and Hulver. From its consecration to religious observances, we have the name Holly, *i.e.* Holy tree.

Properties and Uses.—The sensible qualities of every part of this tree are rather feeble, but the bark has some resemblance to the odour of turpentine, while to the taste it is bitter and viscous. This viscosity is owing to the presence of a glutinous matter, chiefly abounding in the liber or inner bark; it is very soft, tenacious, and filamentous.

The old writers seem to have been but slightly acquainted with the properties of the Holly. They discovered that the berries were emetic and purgative; and Gerard, Ray, and others, mention that ten or twelve of them "are good against the colic." The root and the inner bark of the stem they also considered emollient and resolving, as also the viscid matter usually called bird-lime, which was recommended to be applied to tumours and to parts affected with gout. Very little is recorded of the effects of the leaves: Haller gave the expressed juice with success in jaundice, and Durant in intermittent fevers. Dr. Rousseau, in an *Essay on the Use of Holly and Ilicine*, in the Transactions of the Medico-Botanical Society of London, 1832—33, strongly advocates its use as a febrifuge and substitute for cinchona. The active principle he named *ilicine*. So strong was his belief in its febrifugal properties, that he relates a number of cases, some of an obstinate character, that were cured by *ilicine*.

Holly is much prized for making hedges, as it forms a most impenetrable and durable fence; but, on account of the slowness of its growth, it is seldom employed. Evelyn had a holly-hedge at Sayes Court, four hundred feet long.

feet high, and five feet broad, which he planted at the suggestion of Peter the Great, who resided at his house when he worked in the Dockyard at Deptford. He exclaims in *Sylva*, "Is there under heaven a more glorious and refreshing object than such an impenetrable hedge, glittering with armed and varnished hedges, blushing with natural coral." The branches of this tree are well-known emblems of Christ, being used to adorn our houses and churches at that season; a custom which Dr. Chandler thinks a relic of Judaism, "houses being decked with them that the sylvan spirits might repair thither, and remain unnipped by the frost and cold winds, until a milder season had renewed the foliage of their darling abodes." Holly serves for various useful purposes. Walking-sticks and knife-handles are made of the branches; the wood being very hard, and susceptible of a fine polish, much used by turners, especially in the manufacture of bridge ware; it is also used in veneering, and is sometimes stained black, to imitate ebony. The substance called shell-lime is chiefly obtained from this tree, and in the following manner: The bark is peeled off in the month of May, and the outer rind, or brown epidermis, being removed, is put into boiling water in an earthen vessel, and left in a dry place for about a fortnight; it is then taken out and well bruised in a mortar, until reduced to a kind of paste or silage, washed in cold water to separate extraneous matters, and finally left to itself for four or five days; the scum is then removed from the surface, and it is ready for use.

There are numerous varieties of this tree, chiefly depending on the variegation, margin, and size of the leaves, and colour of the berries, which are highly ornamental in clumps, borders, and other parts of pleasure-grounds, affording much variety when judiciously intermixed.

CIII.

LONICERA PERICLYMENUM, L.

HONEYSUCKLE, OR WOODBINE.

Nat. Ord. CAPRIFOLIACEÆ.*F.* CHEVREFEUILLE. *G.* GEISBLATT.

Distribution.—A twining shrub, 6 to 20 feet high; root ligneous, with numerous creeping stoloniferous fibres; bark pale brown; branches opposite, tinged with purple. Leaves opposite, ovate, or somewhat elliptical, distinct, sessile, smooth or somewhat pubescent above, glaucous beneath; upper ones smaller. Flowers large, yellowish or white, with roseate streaks, in terminal, ovate, imbricated heads. Calyx superior, small, deeply 5-toothed. Corolla monopetalous, tubular, ringent, divided at the limb into 5 unequal segments, lower larger, and more open and revolute. Stamens 5, with subulate filaments attached to the upper part of the tube, terminated by oblong anthers. Ovary inferior, globose, with a filiform style, crowned by a clavate trifid stigma. Fruit of about 6 globose scarlet berries, collected into a terminal head, and accompanied by the permanent bracts; each berry 3-celled when young, but when mature usually 1-celled, and containing, in the midst of pulp, 4 or 5 crustaceous seeds, rounded on one side, convex on the other. (Plate XXVII, fig. 3: (a) the corolla opened, with the stamens and pistil; (b) the head of fruit; (c) a berry, cut horizontally to show the seeds; (d) a seed, magnified.)

Distribution.—Europe, Northern Africa. Plentiful in hedges, woods, and thickets throughout Britain. Flowers June to September.

Etymology and History.—The generic name was given in honour of Lonicer, a German botanist, who died in 1586. This species is most probably the *περικλυμενον* of the ancient Greeks, and was so denominated from *περικλειω*, to entwine.

This plant, for the beauty and exquisite nectareous fragrance of its flowers, is a favourite denizen of the garden.

and shrubbery; but nowhere is it more beautiful than in its native recesses. It is often mentioned by poets.

Shakspeare has been wrongly accused of making the Woodbine and Honeysuckle distinct plants; his words are:—

“So doth the Woodbine, the sweet Honeysuckle,
Gently entwist the maple.”

Milton errs in calling it “twisted Eglantine,” which is the name for sweet-briar or dog-rose. Shakspeare distinguishes them:—

“O’er-canopied with luscious Woodbine,
With sweet musk-roses, and with eglantine.”

The stems of Honeysuckle invariably twine in the same direction, viz., from right to left, or with the sun: this is also the case with the hop, bryony, etc.; while others, such as dodder and convolvulus, constantly take a different direction.

Properties and Uses.—According to Reuss, the root furnishes a sky-blue colour, and the branches may also be employed in dyeing. Kops tells us that of the stem and branches are made teeth for rakes, weavers’ stays, and tubes for tobacco-pipes. The foliage is eaten occasionally by oxen, goats, and sheep, but refused by horses. The leaves, when bruised, have a disagreeable odour and an insipid styptic taste. The bark, stem, leaves, and flowers, are possessed of properties which have claimed for the plant an admission into some of the Continental pharmacopœias. The bark has been used in gout, and the bruised leaves have been used externally in skin diseases and ulcers. A decoction and infusion of the flowers were considered antispasmodic in asthma and coughs.

CIV.

HUMULUS LUPULUS, L. HOP.

Nat. Ord. CANNABINEÆ.*F.* HOUBLON. *G.* HOPFEN.

Description.—Root perennial, ligneous, branching, from which proceed several tough, flexible, striated, scabrous, slightly angular stems, which twine in a spiral manner around neighbouring plants in hedges, to the height of 10 to 20 feet; and round poles as high as 30 feet. Leaves opposite, upper often alternate, petiolate, cordate, 3 to 5-lobed, sometimes simple, serrated, veiny, rough to the touch, being covered with minute asperities, deep-green, accompanied at the base by 2 small, entire reflexed stipules. Male flowers small, yellowish white, in axillary and terminal pendulous racemes, peduncles subtended by small laceolate bracts; perianth of 5 oblong, concave leaves; stamens 5, very short, with capillary filaments, and oblong 2-celled anthers, opening by 2 terminal pores. Female flowers supported on axillary, opposite, short, bracteated peduncles, and composed of numerous ovate, obtuse, membranous scales or bracts, pale greenish yellow, imbricated so as to form an ovoid cone or strobile; each bract has in its axil 2 other scales of much smaller size, incurved at base, and each enclosing a small superior oblong ovary, surmounted by two villous reflexed styles, with simple stigmas. Seed roundish, compressed, margined, covered with a dry membranous integument, reddish brown, sessile at the base of its scale, which is sprinkled with a resinous bright-yellow farina. (Plate XXVII., fig. 2: (a) female flower; (b) calycine scale when the fruit is ripe; (c) fruit; (d) a raceme of male flowers; (e) male flower, magnified; (f) stamen, magnified.)

Distribution.—Temperate Europe, Asia, North America. Common in hedges and copses in England, introduced in Scotland, and rare in Ireland. Flowers June to July or August.

The adage—

"Till St. James'-day be come and gone,
You may have Hops, or you may have none."

seems to refer to the period of flowering.

Etymology and History.—The generic name is said to be derived from *humus*, moist-earth, as hops flourish best in rich moist soils. *Lupulus* is a diminutive of *lupus*, a wolf; because, according to Pliny, the plants suffered to grow among osiers, strangle and destroy them, as wolves the shepherd's flock. The Anglo-Saxon *hoppan*, to climb, is the parent of our modern word Hop.

The first mention of Hops occurs in a letter of donation by King Pepin, which speaks of *humulariæ*; meaning, probably, Hop-gardens. Beckmann does not find the word *Lupulus* to occur earlier than the 11th century. About the beginning of the following century, Hops were introduced into the breweries of the Netherlands. They seem to have been unknown in England till brought from Artois about the year 1524. An old distich runs thus—

"Turkeys, carp, Hops, pickerel and beer,
Came into England all in one year."

Ale, the common drink of our Saxon ancestors, was made generally from malt alone, or clarified with ground-ivy, hence called alehoof, which was thought to render the liquor more wholesome. Parkinson says, "The ale which our forefathers were accustomed only to drink, being a kind of thicker drink than beere, is now almost quite left off to be made, the use of Hoppes to be put therein, altering the quality thereof to be much more healthfull." And Gerard makes a distinction between ale and beer: "The manifold vertues of Hops do manifestly argue the wholesomenesse of beere above ale; for the Hops rather make it a physicall drinke to keepe the body in health, than an ordinary drinke for the quenching of our thirst." For several years after the introduction of Hops there was a strong popular prejudice against them. Henry VIII. issued an injunction to the brewers not to put any Hops or brimstone into their ales. Walter Blith, in his *Improver Improved*, published in 1649, informs us, "That not many

years since, the famous City of London petitioned the Parliament against two nuisances; and these were, Newcastle coals, in regard of their stench, etc., and Hops, in regard they would *spoyl the taste of drink*, and endanger the people. Now, however, severe penalties are inflicted on brewers who use any other bitters for preserving their beer; nevertheless, many articles have been so used.

In 1873 the number of acres under Hop cultivation in England was 63,276. In Kent alone, which is the principal Hop-growing county, over 39,000 acres were so cultivated. In Sussex, Herefordshire, Hampshire, Worcestershire, and Surrey, Hops are also cultivated to a smaller extent, as also slightly in some parts of Wales. In Bavaria, Wurtemberg, Belgium, and France, Hops are grown, but to a smaller extent than in England. Notwithstanding that we produce such large quantities in this country, we import Hops very extensively, both from Continental Europe and from the United States.

Hops are mostly planted in rows, six feet apart; five or six plants are generally placed together in a circle, and several feet distant from each other. It is propagated by cuttings, procured from the most healthy of the old stools. The plants are usually supported the second year by short poles, and the third year, when the plant comes into full bearing, these are replaced by poles of fifteen or twenty feet in height, from four to six of which are apportioned to each hill.

The proper time for gathering the Hop, is when the strobiles, or chaffy capsules, begin to assume a brown colour, about the end of August or beginning of September; the stalks are then cut two or three feet from the ground, and with the poles to which they are attached, placed horizontally on wooden frames. The Hops are plucked by women and children, and after being carefully separated from the leaves and stalks, are put into large sacks and carried away to be dried. The process of drying is performed immediately, in kilns like those used for malt. Charcoal is the fuel usually employed, and the heat requires to be regulated with great care. When dry, they are packed in canvas sacks, called "pockets," each of which contains about one cwt. and a quarter of Hops. In

drying they lose about three-quarters of their weight. Hop plantations are proverbial for their uncertain produce, varying according to the season from 2 to 20 cwt. per acre. The expenses of cultivation are very great; but a plantation once in bearing will not need to be renewed for several years. Few plants are more subject to disease, and depredations from insects. Many varieties of Hop are distinguished by cultivators, such as goldings, whitebines, grapes, colgates, etc.

Properties and Uses.—The young shoots or stems, gathered in spring and boiled, are eaten in some parts as asparagus, under the name of *hop-tops*. The stems or bines, steeped in water, then dried and dressed like hemp, make excellent cloth and cordage, and strong paper; for this purpose, in Sweden they are gathered in autumn, and soaked during the winter, and in the following spring dried in stoves and prepared in the usual manner. From the leaves and flowers when dried, Dambourney procured a fine cinnamon-brown dye, and the expressed juice of the stems affords a permanent red-brown colour. The dried strobiles of Hops have a peculiar, fragrant, heavy, subnarcotic odour, and a very bitter, aromatic, persistent, slightly astringent taste. Their virtues are extracted without heat by infusion in alcohol and ether, and by warm infusion in water; distilled in water they yield a volatile aromatic oil.

The active principle of Hops resides in the yellow translucent glands sprinkled on the scales of the cones near the base. It is separated in part by friction, and collects upon the floors of the kiln and room where the hops are dried, and in warehouses in which large quantities are kept, where it is called *coom*; scientifically it is termed *lupulin*. Dr. Ives, of New York, discovered that by merely beating and sifting the Hops, the lupulin may be obtained, in the form of a fine yellow powder, which adheres to the fingers when rubbed, agglutinates by heat, and is very inflammable. Dr. Ives remarks, that the process of gathering and drying the Hop should be performed with a view to the preservation of the powder,—that a great saving of expense would accrue from its employment in brewing; and the absorption of wort by

the Hops, as generally used, would be obviated. He further observes:—

“So far as can be determined from its sensible properties, a quantity of lupulin which has been kept in bottles for three years, and is now by me, has lost none of its aromatic flavour, or is in any respect deteriorated by keeping. That the lupulin possesses all the virtues of the Hop essential to the good quality and the preservation of beer, is demonstrated by an experiment made in 1820, by an experienced and respectable brewer in this city. He obtained, by threshing and sifting, from a bag of Hops weighing about 150 lbs., 21 lbs. of lupulin. Of this, and the usual quantity of other ingredients, he made forty barrels of beer; the quantity into which he ordinarily put 150 lbs. of Hops. The summer following, and not less than four or five months after it was made, I had an opportunity of comparing this beer with that manufactured about the same time in the usual manner. The former was less bitter, but in no respect inferior to the latter. It would, doubtless, have been better than it was, had all the lupulin been separated from the Hops used in the experiment. There can, therefore, be no doubt of the correctness of my former opinion, that if any mechanical means can be devised, by which the lupulin may be easily and readily separated from the strobiles, it will consummate an improvement of incalculable value in the art of brewing.”

Payen and Chevalier have detected a volatile oil in lupulin, which is similar in odour to the Hop, but more penetrating, narcotic, and acrid in the throat. This oil at first escaped the notice of Dr. Ives, from its great volatility and solubility in water.—*Journal de Pharmacie*, 1822.

The properties usually attributed to Hops are those of being stomachic, tonic, diuretic, more or less narcotic, anthelmintic, and antiseptic. As a stomachic, it is more commonly taken as a beverage than in the character of medicine. In the State of New England, a fermented decoction, with the simple addition of treacle, known by the name of *hop beer*, is much used. When made sufficiently bitter with the Hops, and used as a common drink at meals, it promotes digestion more

than any of the table liquor in common use. It was said to be particularly adapted to obviate the lassitude and debility felt by persons of relaxed habits in the spring, or on the approach of warm weather. A simple infusion has been employed for that purpose. As a tonic, it has been described as very useful in some cases of dyspepsia, by giving tone to the stomach, and allaying irritation; also in some stages of fevers and cutaneous diseases.

Besides its allowed tonic action, the Hop manifests considerable influence over the nervous system, particularly by inducing sleep and allaying pain; hence it is a valuable remedy in those affections accompanied with suffering and watchfulness. Dr. Maton found that, besides allaying pain and procuring sleep, the preparations of Hops were capable of reducing the frequency of the pulse, and increasing its firmness in a direct manner.

For the purpose of producing sleep, pillows stuffed with Hops have been used. They were first prescribed, we are told, in 1787, to George III., and again with great effect in the Prince of Wales's severe illness a few years since. At the present time Hops are used medicinally, in the forms of tincture, infusion or extract, as a tonic and sedative. The granular, yellow substance *lupulin* has similar properties to the Hop, with somewhat less astringency. It is known in British practice, but is not often prescribed.

CV.

MARRUBIUM VULGARE, L. WHITE HOREHOUND.

*Nat. Ord. LABIATÆ.**F. MARRUBE. G. GEMEINER ANDORN, MARIENWURZEL.*

Description.—Root perennial, woody, with many fibres. Stems erect, branched from the base, strong, quadrangular, covered with fine hoary pubescence or woolliness, 12 to 18 inches high. Leaves opposite, petiolate, ovate or nearly round, thick, much wrinkled, unequally crenate-toothed, veined, covered with pubescence like the stem, and of a cinereous bluish green colour. Flowers small, in dense, axillary, convex whorls, subtended by setaceous villous bracts. Calyx tubular, with 10 ribs and 10 narrow bristly hooked teeth, 5 of which are alternately smaller; throat hairy. Corolla nearly white, bilabiate, with a cylindrical exserted tube; upper lip linear, straight, cloven; lower lip broader, 3-lobed, lateral lobes acute, reflexed, middle lobe large and somewhat emarginate. Stamens didynamous, included in the tube of the corolla, tipped with small oblong anthers. Ovary 4-parted, surmounted by a simple filiform style and a bifid stigma. Fruit composed of 4 oblong nutlets, situated at the bottom of the persistent calyx. (Plate XXVI, fig. 2: (a) entire flower; (b) a section of the corolla; (c) pistil; (d) calyx, opened to show the 4 nutlets.)

Distribution.—Europe, Northern Africa, Western Asia, to North-Western India. Introduced in North America. In waste places in England, but not common; more rare in Scotland and in Ireland. Flowers July to November.

Etymology.—The name Marrubium is said by Linneus to be derived from Maria-Urbs, a town of Italy, situated on the borders of the Fucino lake; others suppose that it comes from the Hebrew *Marrob*, which signifies a bitter juice. It is thought to be the *πρασιν* of Dioscorides and Theophrastus, and the Marrubium of Pliny.

Properties and Uses.—This plant exhales a fragrant odour,

which is somewhat vinous or musky, agreeable at first, but soon fatiguing the sense. It has a bitter, penetrating, and slightly acrid flavour, remaining long in the mouth. These qualities in great part remain in the dried herb, but they are destroyed by long keeping. Both water and alcohol extract its virtues. By the ancients it was extensively used, with the view of removing obstructions of the lungs and other viscera. It has likewise been very celebrated in humoral asthma, and particularly that kind attended with a redundancy of viscid mucus; in obstinate coughs, and pulmonary consumptions. De Haen and Haller often found it fail. It has also been employed in chronic catarrhs, in scarlatina, and intermittent fevers. Many of the old physicians and writers on drugs highly extol the plant for its medicinal virtues; and the original authors of this work considered that it might be successfully given in cases where tonic remedies were necessary, and they also considered it entitled to be esteemed as a serviceable expectorant. It is still a favourite popular remedy in coughs.

CVL

BALLOTA NIGRA, L. BLACK HOREHOUND.

*Nat. Ord. LABIATÆ.**F. MARRUBE NOIR, BALLOTE. G. GOTTESVERGESS.*

Description.—Root perennial, woody, fibrous, sending up several erect, straggling, branched, quadrangular stems, tinged with purple and clothed with woolly, recurved hairs, 2 or more feet high. Leaves opposite, ovate, crenate serrate, petiolate, clothed with soft hairs, shining dull green. Flowers in dense whorls in the axils of the leaves; peduncles branched, subtended at the base by setaceous fringed bracts, shorter than the calyx. Calyx salver-shaped, divided at the rim into 5 short, mucronate, spreading teeth, and traversed by 10 nerves or ribs. Corolla pale reddish purple, yellowish at the helmet; upper lip erect, ovate, slightly concave, unequally crenate,

villous; lower lip trifid, lateral lobes roundish crenate, middle lobe 4 times larger, emarginate, glabrous, marked with white veins. Stamens didynamous, with subulate filaments shorter than the upper lip, terminated by oblong anthers of 2 spreading cells. Ovary small, 4-parted, surmounted by a filiform style and a slender bifid stigma. Fruit consists of 4 small oblong nutlets, nearly black when ripe, enclosed in the persistent calyx. (Plate XXVI., fig. 3: (a) the calyx; (b) pistil; (c) corolla, opened to show the stamens.)

Distribution.—Europe, Northern Africa, Western Asia. Introduced in North America. Tolerably abundant in waste places and hedge-banks in England; rare in Scotland and Ireland. Flowers July and August.

Etymology.—The generic name is derived from the Greek *Βαλλοτη*, so called from *βαλλω*, to reject, on account of its disagreeable odour. It is supposed to be the plant mentioned by Dioscorides under that name.

Properties and Uses.—The whole plant has a strong disagreeable odour, particularly when bruised, and a nauseous bitter taste. Dioscorides observes that this plant is an antidote to the bite of a mad dog; and other writers have copied this erroneous statement. Thus in Beaumont and Fletcher's *Faithful Shepherdess* (act. ii.) we find—

“This is the clote bearing a yellow flower
And this black Hore-hound; both are very good
For sheep or shepherd bitten by a wood-
Dog's venom'd tooth.”

With regard to its medicinal uses, Tournefort relates several instances of gout, if not absolutely cured, at least rendered much more tolerable and less frequent in its occurrence by the use of this plant. It is seldom, however, taken internally, on account of its unpleasant taste and fetid odour. Externally, the leaves, in form of poultice, or bruised with honey, resolve hard tumours, allay pain, and cleanse ill-conditioned ulcers. The inhabitants of Gothia consider it a panacea in most cutaneous diseases, as scurvy, itch, ring-worm, etc.

CVII.

COCHLEARIA ARMORACIA, L. HORSE-RADISH.

Nat. Ord. CRUCIFERÆ.*F.* RAIFORT. *G.* MEERRETTIG.

Description.—Rootstock perennial, long, white, cylindrical, running deeply into the ground, and with difficulty extirpated. Stem erect, cylindrical, smooth, branched towards the top, 2 to 3 feet high; flowering stems angular. Radical leaves very large, dark green, oblong, crenated and much veined, supported on long footstalks; cauline leaves smaller, sessile, often incised, uppermost elongated, lanceolate, toothed or quite entire. Flowers numerous, terminating the stem and branches in loose, racemose, paniculate corymbs. Calyx of 4 ovate, equal, concave, spreading, deciduous sepals. Corolla white, of 4 cruciform petals, with an obovate, obtuse limb, twice as long as the calyx. Stamens tetradynamous, simple, with subulate incurved filaments, terminated by yellow cordate anthers. Ovary roundish, oblong, surmounted by a short style, crowned by a capitate disciform stigma. Fruit an oblong silicle, or pod, wrinkled, veiny, with turgid valves and slender dissepiment; 2-celled, many-seeded (often abortive). Seeds small, globose and destitute of a margin; the cotyledons are accumbent (o=). (Plate XXVI., fig. 4: (a) calyx; (b) petal; (c) stamens and pistil; (d) pistil, separated; (e) fruit, or silicle.)

Distribution.—Said to be "indigenous to the Eastern parts of Europe, from the Caspian, through Russia and Poland to Finland." In waste places, river-banks, and corners of fields in this country, but an introduction. It is cultivated as an esculent. Flowers May and June.

Gerard, who seems to have considered it indigenous to this country, says: "Horse-radish for the most part groweth, and is planted, in gardens; yet have I found it wilde in sundry places, as at Namptwich in Cheshire, in a place called the Milne Eye; as also at a small village neere London, called Hogsdon, in the field next to a farne-house leading to Kings-

land, where my very good friend, Master Bredwell, practitioner in phisicke, a learned and diligent searcher of simples, and Mr. William Marten, one of the fellowship of Barber-surgeons, my deare and loving friend, in company with him found it, and gave me knowledge of the place, where it flourisheth to this day."

Etymology.—The generic name is derived from *cochlear*, a spoon; the leaves of many of the species being hollowed like the bowl of a spoon. *Armoracia* is formed from the Celtic, *ar* near, *mor* the sea, *rich* against, viz., a plant growing near the sea. Horse-radish has been called provincially Red-cole.

Like many other plants which increase chiefly by the root, Horse-radish seldom perfects its seeds. It is easily propagated by cuttings, and thrives best in a rich deep soil. Moisture increases its bitter and alkaline flavour.

Properties and Uses.—Horse-radish is universally known as a condiment to the roast-beef of Old England, and to some kinds of fish, also as an ingredient in sauces. The Germans seem to have used both the root and leaves with food during the Middle Ages, but though many of the English writers on herbs of that period mention the plant, they do not refer to its use amongst the English people. At the latter end of the 16th century it was known as Red Cole. Gerard refers to it as being eaten with fish and meat by the Germans. About the middle of the 17th century, however, we learn from Cole's *Adam in Eden, or Nature's Paradise*, that the sliced root was eaten in this country with vinegar. Beckmann mentions the plant as well adapted for the purpose of tanning or currying leather. It is refused by all kinds of cattle.

The fresh root has a very pungent odour, and a hot, biting acrid taste, combined with a slight degree of sweetness. By continued boiling, these qualities are entirely dissipated; and by drying, it loses more than half its weight, but still retains much of its acrid pungency. This, however, at length disappears, and it becomes sweetish, and finally bitter and insipid. It should be kept for use in a cellar, where, covered with sand or dry earth, it retains its virtues for a considerable time.

Horse-radish root is stimulating, antiscorbutic, diuretic, emetic, and expectorant. Numerous experiments have proved its antiscorbutic virtues. Bergius, Ettmuller, and others have strongly recommended Horse-radish as possessing all the above properties. Though it is now very seldom prescribed, an infusion or a distilled spirit is sometimes used.

CVIII.

EQUISETUM ARVENSE, L. HORSE-TAIL.

Nat. Ord. EQUISETACEÆ.

F. PRÊLE DES CHAMPS. G. SCHACHTELHALM.

Description.—Root perennial, slender, dark brown, creeping, jointed, with numerous capillary fibres. Sterile stems decumbent at the base, 1 to 2 feet high, with undivided, ascending, whorled branches, angular, with about 12 striæ, microscopically tuberculate, leafless, but furnished at each articulation with about 12 subulate, erect, dark brown sheaths, membranous at the margin; fertile stems, which appear before the sterile ones, from 6 to 8 inches high, erect, unbranched, leafless, smooth, tubular within, silvery brown externally; sheaths, distant, erect, long, cylindrical, ventricose, striated, incised, and toothed. Fructification terminates the stem in a long, oblong, lanceolate, light brown spike. (Plate XXVIII, fig. 2: (a) one of the peltate scales, magnified, with its involucre discharging the capsules or sporules; (b) capsule, magnified.)

Distribution.—Europe (Arctic), Northern Africa, Northern Asia, Himalaya, North America. Common in this country on road-sides, banks, etc. Fructification appears in April.

Etymology.—The generic name is formed from *equus*, a horse, and *seta*, a hair or bristle, signifying Horse-tail, in allusion to the form of the stem. The *ἵππουρις* of Dioscorides, and the *Equisetum*, *Ephedron*, and *Anabasis* of Pliny, are supposed to refer to one or other of these plants.

Properties and Uses.—The cuticle of the stems contain a large quantity of silex, which renders them very suitable for polishing hard wood, ivory, brass, etc. *E. hyemale*, often called Dutch-rushes, is much employed for these purposes by artisans, and was formerly used to scour and clean pewter dishes and plates, milk-pails, and other culinary articles. This species has been recommended as useful for tanning or dressing leather. *E. arvensis* is a troublesome weed to farmers, especially in ground which has been reclaimed from rivers, and in fields where water stagnates in winter. It is seldom touched by animals, except the goat; and when cows have been driven by hunger to feed upon it, injurious consequences are said to have ensued, viz., diarrhoea, bloody urine, and abortion.

It is nearly inodorous, and has a slightly saline, herbaceous, and styptic taste, producing in the mouth a sensation of dryness. The Horse-tail has been reputed astringent and vulnerary. Gerard thus describes its vulnerary properties:—"Dioscorides saith that Horse-tail, being stamped and laid to, doth perfectly cure wounds; yea, although the sinues be cut asunder, as Galen addeth. It is of so great and singular virtue in healing wounds, as that it is thought and reported for truth, to cure wounds of the bladder and other bowels, and helpeth ruptures and burstings."—*Herbal*, p. 1116.

As an astringent it was formerly much used in dysentery, ulcers of the lungs, phthisis, malignant fevers, etc. A strong decoction has also been recommended as an outward application to indolent ulcers. In more recent times Leuhossek of Vienna has strongly advocated it as a powerful diuretic.

CIX.

CYNOGLOSSUM OFFICINALE, L. HOUND'S-TONGUE.

Nat. Ord. BORAGINÆÆ.*F.* CYNOGLOSSE, LANGUE DE CHIEN. *G.* HUNDSZUNGE.

Description.—Root biennial, long, fusiform, and slightly branched; reddish black externally, whitish within. Stem thick, erect, leafy, striated, villous, branched above, 2 feet or more high. Leaves numerous, alternate, waved, pubescent, soft, greyish dull green, often a foot in length; lower broadly lanceolate, attenuate, on long footstalks; upper sessile, lanceolate, and somewhat ovate at the base. Flowers small, supported on short peduncles, arranged in terminal and axillary, paniculate, unilateral, slightly drooping racemes, each with a single amplexicaul bract near the base. Calyx inferior, deeply 5-cleft, with erect, villous, subacute segments. Corolla funnel-shaped, scarcely longer than the calyx, dull crimson; tube very short, thick, greyish, spotted with purple; limb concave, 5-parted, with roundish, obtuse, veined segments, its mouth nearly closed with 5 oblong, convex, purple, scales. Stamens 5, filaments short, inserted into the margin of the tube, alternate with, and just below the scales, and tipped with cordate-oblong, greenish anthers. Ovary depressed, smooth, yellowish green, 4-parted, style pyramidal, as long as the tube of the corolla, surmounted by a capitate emarginate stigma. Nutlets 4, globose, depressed, imperforate at the base, affixed laterally to the central column or style, very rough; each nutlet containing an ovate, gibbous, smooth seed. (Plate XXVIII., fig. 4: (a) the calyx; (b) corolla; (c) pistil; (d) a nutlet isolated, attached to the calycine segment.)

Distribution.—Europe, Northern Africa, Siberia, Western Asia. Introduced in the United States. In fields and waste places in Britain, but not common. Flowers June and July.

Etymology.—The generic appellation from κυων, κυνός, a dog, and γλωσσα, a tongue, and the vernacular names of the plant in this and most of the European languages, refer to

the shape and softness of the leaves, which have been compared to the tongue of a dog. It is not quite certain whether this plant is the *κυνόγλωσσον*, of Dioscorides, and the *Cynoglossos* of Pliny.

Properties and Uses.—The root, or rather the bark of the the root, has a narcotic odour, and a saline, sweetish, disagreeable, viscid taste. The foliage has a similar flavour to the root, but more insipid, and a subnarcotic fetid smell, which some have compared to that of the goat, and others to the odour of mice.

The somewhat lurid appearance of this plant, and the fact that no animal except the goat will touch it, has caused it to be regarded with a degree of suspicion, which its fetid and narcotic odour tends to confirm. Some writers deny the narcotic properties of Hound's-tongue, but those who have gathered the plant in their botanical excursions, and have had occasion to handle it for any length of time, are well acquainted with its powerful narcotic emanations; in some cases producing nausea, giddiness, and fainting followed by sickness. This property, however, is nearly lost after the plant has been long kept, and it has then merely the cooling, sweetish, and mucilaginous qualities of bugloss and comfrey, to which it is closely allied. Soil, likewise, appears to have a material influence upon it; as, according to Hermann, those plants which grow in damp places have a rank, heavy, narcotic smell, while those produced in dry localities are nearly inodorous. There is no doubt that the different parts of this vegetable, like Henbane, etc., vary considerably according to age and season, and are most vigorous just before the epoch of flowering.

We have but few instances recorded of the poisonous effects of this plant when accidentally received into the stomach. Morison relates, that a whole family at Oxford ate the boiled leaves gathered in mistake for those of comfrey, and soon after dinner were seized with obstinate vomiting, followed by stupor and sleepiness; which symptoms continued alternately for nearly forty hours, and with such severity that one person died.

The medicinal effects of Hound's-tongue are somewhat doubtful; narcotic, anodyne, and astringent properties being attributed to it by some authors, whilst others deny its having any narcotic or anodyne influence over the human system. It was formerly included in the *Materia Medica* of the London and Edinburgh pharmacopœias, and is, we believe, still used in some parts of the Continent in catarrh, coughs, dysentery, etc. It has also been used externally for cataplasms, in tumours and ulcers.

CX.

SEMPERVIVUM TECTORUM, L. HOUSE-LEEK.

Nat. Ord. CRASSULACEÆ.

F. JOUBARBE. *G.* HAUSLAUCH.

Description.—Root perennial, descending, elongated, somewhat branched and fibrous, crowned with several dense tufts of thick, fleshy, ovate, wedge-shaped, acute, imbricated leaves, smooth on both sides, ciliated at the margin, bright green, often tinged with red at the summit. Stem erect, hairy, about a foot high, clothed with narrow, alternate, sessile leaves, which become gradually smaller as they approach the summit. Flowers in a terminal, cymose corymb; secondary branches springing from the axil of a leaf, or bract, supporting several shortly pedicellate flowers, disposed in a stellate form, and for the most part turned in one direction. Calyx deeply divided into 12 acute, persistent segments. Petals usually 12, lanceolate, acute, equal, withering, roseate purple. Stamens 24, 12 of which are perfect, opposite the petals, with short subulate filaments, and globose, 2-lobed anthers; the remaining 12 being transformed into carpels. Ovaries 12, ranged in a circle, oblong, pointed, compressed, terminated by short recurved styles with obtuse stigmas. At the base of each ovary, and alternate with the stamens, is a small, nectariferous, wedge-shaped scale. Carpels equal in number to the ovaries, 1-celled,

opening longitudinally, containing numerous minute seeds, arranged in a single series along each margin of the suture. (Plate XXVII., fig. 4: (a) tuft of radical leaves; (b) entire flower; (c) carpels; (d) stamen; (e) carpel, divided longitudinally; (f) seed.)

Distribution.—Europe and Western Asia. Tolerably plentiful on walls, roofs of buildings, etc., in many parts of Britain, but not indigenous. Flowers June and July.

Etymology.—The generic name is derived from *semper*, always, and *vivo*, to live, in allusion to the vivaciousness of these plants. Common House-leek has the various provincial names of *Ayegreen* and *Sengreen*, signifying evergreen; also Jupiter's-eye, Bullock's-eye, and Jupiter's-beard.

Properties and Uses.—House-leek has no very perceptible odour; to the taste it is watery, cooling, and slightly acrid and styptic. The leaves are very succulent, and contain a large quantity of acidulous, rather opaque juice, which besides producing a sensation of astringency in the mouth, manifests its astringency by the dark colour it assumes when mixed with a solution of sulphate of iron. Though it is now but indifferently valued as an internal remedy against diseases, it was formerly considered a very serviceable refrigerant and astringent, good results having been ascribed to its use in dysentery and convulsive diseases. Peasants, also, led no doubt by the natural credulity which prevails respecting "herbs" among that class of society, sometimes take it for the cure of intermittent fevers, and are said to derive either imaginary or positive relief. Externally applied, the House-leek has enjoyed no mean reputation. Galen celebrates it as an application in erysipelas, shingles, and other inflammations; Dioscorides in ophthalmia, and against worms; and Pliny for weakness of the eyes. The bruised plant is frequently employed, in rustic practice, against bruises, burns, and long-standing ulcers.

"In some countries House-leek is regarded with a kind of religious veneration; the simple and credulous inhabitants attributing to it the power of defending them from enchantments, and the malevolence of pretended sorcerers." Linneus

informs us that in Smoland, House-leek is planted on the roofs of houses to preserve them from decay. Goats and sheep eat the foliage of this plant, other animals in general refuse it.

CXI.

HYSSOPUS OFFICINALIS, L. Hyssop.

Nat. Ord. LABIATÆ.

F. HYSOPE.

G. YSOP.

Description.—Root perennial, ligneous, about as thick as the finger, somewhat branched and fibrous. Stems several from the same root, erect, shrubby, obsoletely quadrangular, about 2 feet high, with opposite, elongated branches. Leaves deep green, opposite, spreading, subsessile, long, lanceolate, acute, entire, minutely ciliated at the margin, sprinkled on both sides with small glandular dots. Flowers nearly sessile, for the most part turned in one direction, disposed in whorls in the axils of the upper leaves, forming erect, elongated, leafy, spike-like racemes. Calyx tubular, funnel-shaped, slightly hairy within, striated, divided at the limb into 5 nearly equal, acute teeth. Corolla blue, bilabiate, with a slender tube; upper lip small, erect, rounded, emarginate; lower lip divided into 3 segments, intermediate one large, obcordate, spreading, and somewhat crenated. Stamens didynamous, longer than the corolla, with subulate spreading filaments, tipped with simple linear anthers. Ovary 4-parted style, slender, tubular, violet-coloured, a little longer than the stamens, and terminated by a bifid stigma. Fruit consists of 4 nutlets, enclosed in the calyx, each containing a single globose seed. (Plate XXVII., fig. 1: (a) entire flower, magnified; (b) pistil; (c) fruit; (d) nutlet of the fruit, magnified.)

Distribution.—Hyssop was first cultivated in this country about the year 1548, and is now well known in gardens, being valued for its beauty and fragrance when in flower, as well as for its medicinal qualities. It grows wild in many parts of

Middle and Southern Europe, especially in mountainous situations, but it is probably of Asiatic origin. Flowers June to August.

Etymology.—Much diversity of opinion has prevailed as to whether this plant is the *esob* of the Hebrew writings, and the *υσσωπος* of the Greeks. Dioscorides has left no description of the *υσσωπος*, apparently considering that it was sufficiently well known; but the effects attributed to it do not correspond with those of our Hyssop.

Properties and Uses.—This plant has a very agreeable, fragrant odour, and a warm, aromatic, bitterish taste. According to Bergius, the recent herb, when masticated, affects the tongue and fauces with a sensation of heat, like that produced by camphor, but more feeble. Hyssop was formerly much recommended for chest diseases, especially catarrh, and asthma, with the view of promoting expectoration; but its stimulating properties render it a doubtful remedy in these complaints.

The infusion of the leaves, in the form of tea, was said to augment the action of the stomach and intestines, and was frequently employed with that view by aged or feeble persons. Rosenstein found it destructive to worms in children; and in Sweden, it would appear to be a common vermifuge.

Externally, Hyssop has obtained great reputation for removing the blackness consequent on a blow, especially black eyes, and even for discussing a bloodshot eye. The method of using it was, by taking either the fresh or dried plant, tied up in a piece of linen, and immersing it in boiling water or wine, and applying it hot and moist to the part.

CXII.

HEDERA HELIX, L. IVY.

Nat. Ord. ARALIACE.*F. LIERRE. G. EPHEU, BAUMWINDE.*

Description.—An evergreen climbing shrub, throwing out roots from the side by which it comes in contact with other substances; branches tortuous and flexible; wood soft, light, and porous. Leaves, when young, lanceolate and entire; at a more advanced period they become cordate, 3 or 5-lobed; and subsequently, when it has arrived at the top of any support, the branches shorten, and form into large bushy heads, and the leaves become ovate and undivided; all the leaves are petiolate, coriaceous, thick, shining, deep green, often veined with whitish lines. Flowers small, pale green, collected into spherical, simple umbels, at the summit of the branches; pedicels generally covered with stellate pubescence. Calyx very small, 5-toothed. Petals, oblong, acute, reflexed, light yellowish green. Stamens 5, alternate with the petals, erect, with subulate filaments inserted beneath a large disk, which crowns the ovary; anthers cleft at the base. Ovary inferior, turbinate, crowned by a very short style and simple stigma. Fruit smooth, globose, purplish black, rather succulent, about the size of a pea, crowned by the remains of the calyx, 1-celled, 3 to 5-seeded. Seeds large, oblong, angular, convex on the outer, angular on the inner side. (Plate XXVIII, fig. 3: (a) lower leaf; (b) entire flower; (c) calyx and pistil; (d) fruit or berry; (e) seed.)

Distribution.—Europe, Northern Africa, Western Asia, to the Himalaya. In this country it is very frequent in woods, on the trunks of trees, on the walls of ruined buildings, and on rocks. Flowers October to November, ripening its berries in March and April.

Etymology and History.—Several different etymologies of the word *Hedera* have been given, as from *hæreo*, to adhere, and *edo*, to eat; but the most probable, is from the Celtic

hedra, a cord. The specific name is derived from *ελεω*, to encompass, in allusion to the twining stems. The Celtic word, *iw*, green, is probably the parent of our word Ivy, as it is likewise of Yew.

Ivy has enjoyed much poetical renown from the days of "hoar antiquity." By the ancients, Ivy was dedicated to Bacchus; the statues of the god were crowned with a wreath of this plant, and his frantic worshippers, especially at their annual festivals the *διονυσια* or *οργια*, decorated themselves with garlands of Ivy; they also introduced it to their banquets, and had it carved on their goblets. Homer represents his heroes as drinking from a cup made of Ivy-wood (*κισσυβιον*). Probably these customs were owing to the opinion, early and for a long period entertained, that this plant was an antidote to the effects of the juice of the grape; and, even in the present day, we find that in some parts of the south of Europe, Ivy is suspended at the entrance of taverns and *cabarets*, as it was formerly in this country. Thus Wilson tells us, "by the signe wee understand the thing signified; as by an iuie garlad, we judge there is wine to sel." Ivy formed the poet's crown; and the classic writers frequently refer to it. Many beautiful allusions to this plant may also be found in the works of our own poets.

Properties and Uses.—The roots of Ivy were at one time used by leather-cutters, to sharpen their knives upon. The wood is sometimes employed by turners; it is soft and porous, and vessels made of it may be turned so thin as to transmit liquors; hence, with the ancients, according to Pliny, it had the reputation of separating wine and water when the two were mixed together, viz., by retaining the wine, and allowing the water to filter through its pores. Bohmer states, that both the leaves and branches are useful in tanning. A decoction of the leaves has been used to dye the hair, and to remove stains caused by ink or fruit. The berries are much eaten by wood-pigeons, blackbirds, thrushes, etc., in the spring.

The leaves are inodorous, but nauseous, slightly bitter, and austere to the taste. The recent berries are somewhat acid; when dried, they become bitterish and slightly acrid. The

resin which exudes from the old stems, either spontaneously or by incision, was at one time met with in commerce in small irregular compact masses of a brown colour, streaked with red. It was occasionally used for varnish-making.

The leaves, berries, and resin of Ivy have been employed in medicine, the former rarely internally, but externally for healing sores, ulcers, etc. The berries were supposed by the ancients to have purgative and emetic qualities. Later writers have recommended them as alexipharmic and sudorific. Boyle gave them in large doses to induce perspiration; and during the London plague, they were said to be used with success. The resin, formerly directed in the Edinburgh Pharmacopœia under the name of *gummi hederæ*, possesses corroborant, astringent, emmenagogue, and antispasmodic virtues.

CXIII.

JUNIPERUS COMMUNIS, L. JUNIPER.

Nat. Ord. CONIFERÆ.*F.* GENIÈVRE. *G.* WACHHOLDER.

Description.—A rigid evergreen shrub, varying in height from 3 to 30 or more feet, much branched, with diffuse irregular tufted branches; wood hard, reddish, covered with a rough reddish brown bark. Leaves very numerous, arranged in threes, sessile, linear, mucronate, pungent, channelled, somewhat glaucous above, convex, and deep green beneath. Flowers dioecious, or occasionally monœcious, small, and axillary. Male flowers in small yellowish ovoid catkins, each with 3 rows of pedicellate, whorled, imbricated, subpeltate scales, 3 in each whorl, and a terminal one, at the base of which are 3 or 4 nearly sessile stamens; filaments united at the base; anthers 1-celled, and containing much pollen. Female flowers in globose catkins, consisting of about six imbricated permanent scales, each with a roundish ovary, and 3 very short styles, terminated by simple stigmas. Fruit a small globose berry,

bluish black, the succulent outside composed of the inner scales of the flower, which become fleshy and coalesce, subtended at the base by the outer tuberculous scales, and including 3 oblong bony seeds or nuts, convex, and channelled externally. (Plate XXVIII., fig. 1: (a) part of a branch of the male plant; (b) catkin, or cone of male flowers; (c) one of the female flowers, magnified; (d) fruit, cut transversely to show the seeds, or nuts; (e) nut.)

Distribution.—From the Atlas, Taurus, Himalaya, Japan, and Rocky Mountains, to the arctic regions. So widely dispersed is this plant, that in different countries it presents many marked varieties, even assuming a decumbent habit, only rising a few inches from the ground in arctic countries, and the mountainous parts of temperate Europe. It is a well-known shrub in this country. Flowers May and June, the berries ripening in the second year.

Etymology.—The generic name is of classical origin, but it has been supposed by some to be derived from the Celtic *jêneprus*, signifying rude or rough.

Properties and Uses.—Thrushes, grouse, and other birds feed upon the fruit. The young shoots are eaten by horses, sheep, and goats. The wood is hard and very durable, and is used for turning, inlaying, etc.

Juniper berries are used as a condiment in Germany, especially, it is said, for flavouring *sauerkraut*. Infused in alcohol, they form an excellent ratafia, and they enter into several liqueurs and confections. Scheffer and Mundius assert that the Laplanders make a decoction of these berries, which they drink as tea or coffee. This Linneus contradicts; but, he adds, in several provinces of Sweden the peasantry prepare a very agreeable fermented liquor with the berries, which, however, they drink cold, and never hot, like tea or coffee.

From the French name *genièvre*, which was applied to a spirit obtained from Juniper berries, and known in English as *geneva*, came originally our word *gin*; and the berries are still used for flavouring gin distilled in Holland. The recent tops have a fragrant odour, and a balsamic bitterish taste.

The berries have an aromatic odour, and a warm, pungent, sweetish taste, which, if they are long chewed, or previously well bruised, is followed by a considerable bitterness. The wood of the Juniper, either of the stem or root, is diuretic and sudorific, and has been very favourably mentioned for a variety of complaints. In decoction or infusion, it has been employed in gout, rheumatism, catarrhs of the lungs and bladder, obstructions of the liver, etc. Several of the old writers have attributed to it various medicinal properties, all of which may be said to be concentrated in the berries and the essential oil contained in them.

There have been a variety of preparations of Juniper employed in medicine, but principally the *rob*, or inspissated juice, a simple and a compound spirit, an essence, and essential oil, besides the simple infusion or decoction. By some, the berries were recommended to be eaten to the number of fifteen to twenty at a time, or the dried berries in powder. Juniper berries, and the oil obtained from them, are still reputed as diuretic, but are seldom used in English practice.

The berries are collected in large quantities in Savoy, in the Departments of Doubs and Jura, France, also in Austria and Italy.

CXIV.

ALCHEMILLA VULGARIS, L. LADY'S-MANTLE.

Nat. Ord. ROSACEÆ.*F.* ALCHIMILLE, PIED DE LION. *G.* SINAU, FRAUENMANTEL.

Description.—Rootstock perennial, oblique, fibrillose, ligneous; dark brown externally, and marked with the annular remains of former leaves. Stems more or less numerous, erect, slender, cylindrical, leafy, naked, or clothed with hairs a foot or more high. Leaves alternate; radical ones large, on long petioles; cauline ones smaller, with petioles, which become gradually shorter towards the top of the stem; orbicular-

reniform, concave, plaited, with from 6 to 9 serrated lobes, nerved, veiny, smooth, or more or less pubescent, subtended at the base by stipules, which, on the upper part of the stem, are connate, toothed, spreading horizontally. Flowers small, numerous, yellowish green, in dichotomous corymbs, at the summit of the stem and branches. Perianth inferior, monophyllous, persistent, with a contracted tube, and an 8-parted limb, alternate and outer segments smallest. Stamens 4, with short subulate filaments inserted into the perianth, and roundish anthers. Ovary solitary (sometimes twin), oblong, with a short, lateral style, tipped with a capitate stigma. Fruit of 1 or 2 oblong, compressed, one-seeded achenes, enclosed in the indurated tube of the calyx. (Plate XXIX., fig. 1: (a) entire flower, magnified; (b) pistil; (c) calyx, cut vertically to show the achenes.)

Distribution.—Europe (Arctic), Siberia, Western Asia to the Himalaya, Greenland, Labrador. Common in moist woods and pastures in Great Britain. Flowers June and August.

Etymology.—This plant was supposed by Linneus to derive its name, *Alchemilla*, from the alchemists, who considered the dew on its leaves to possess extraordinary properties. Hence, like the term alchemy, it comes from the Arabic *alkémelych*. It is called *Lady's-mantle*, the *Mantle of our Lady* (the Virgin Mary), in allusion to the shape and elegant plaitings of the leaves; these have also suggested the name *Lion's-foot*. In different parts of the country it is called *Great Sanicle*, and *Bear's-foot*.

Properties and Uses.—This plant, though refused by swine and seldom touched by cows, is relished by horses, goats, and sheep; it has, therefore, been recommended for cultivation. According to some writers, the whole plant may be advantageously used in tanning.

The recent root, when cut, has a whitish colour, an unpleasant odour, and a styptic taste. The herbaceous part is somewhat austere to the taste, but is nearly destitute of odour.

The plant had a reputation amongst the old physicians for its efficacy in diabetes, dysentery, and the stopping of hemor-

rhages. Linneus relates, that during a spasmodic epidemic disease which prevailed in Smoland, in 1754, a tincture of the leaves of this plant was used with much success by the peasantry. Its action, however, is very mild, and it is not used in medicine in this country.

CXV.

LAVANDULA VERA, DC. LAVENDER.

Nat. Ord. LABIATÆ.

F. LAVANDE. *G.* LAVENDEL.

Description.—A small fragrant shrub, with an erect, much-branched, quadrangular stem, 2 to 3 feet high. Leaves opposite, linear-lanceolate, very entire, somewhat hoary, those of the branches revolute at the margin; the lowermost tapering into a petiole, clothed as well as the stem with minute stellate hairs. Flowers from 6 to 10 together, in opposite whorl-like cymes, forming an interrupted, elongated, terminal spike; the bracts, at the base of the cymes, are ovate-cordate, acuminate; those at the base of the pedicels unequally bifid and subulate. Calyx tubular, bilabiate, 13-nerved; upper lip erect, roundish, ovate, projecting beyond the lower lip; lower lip truncate, with 3 obsolete teeth. Corolla violet-coloured, tube elongated, limb bilabiate; upper lip bifid, tomentose externally; lower lip with 3 ovate spreading segments, shorter than the upper lip. Stamens didynamous, and inserted on the lower side of the tube of the corolla; anthers small, peltate, ciliate, 2-celled. Ovary deeply 4-lobed, surrounded at the base by a disk, style slender, stigma obtuse bifid. Fruit consists of 4 small nutlets, umbilicate at the base, enclosed in the persistent calyx, each containing a single seed; but seldom more than one comes to perfection. (Plate XXIX., fig. 2: (a) entire flower; (b) corolla, opened to show the stamens; (c) calyx and pistil; (d) pistil, isolated; (e) calyx, opened, showing one developed and 3 abortive nutlets.)

Distribution.—Eastern Spain, Southern France, Upper Italy, Corsica, Calabria, and Northern Africa. Cultivated over a large part of Germany, and as far north as Norway, and in English gardens from about the year 1568. Flowers July and August.

Etymology.—The generic name *Lavandula*, whence the English Lavender, is said to be derived from *lavare*, to wash, because the ancients used it as a perfume when they took the bath. Notwithstanding, however, all that has been written on the subject of the identification of Lavender in the writings of the classical authors, no satisfactory result has been arrived at.

Properties and Uses.—The flowers have a pleasant aromatic taste, and a delicate but permanent fragrance. The distilled water, known as Lavender-water, is a well-known cosmetic. Lavender is stimulating, carminative, and tonic. It has been commended in syncope, palsy, palpitations of the heart, vertigo, lethargies, spasms, convulsions, colic, and a host of other affections. Taken internally, it was used to excite appetite, remove flatulency, and in certain cases increase the action of the skin, kidneys, and uterus. An infusion has also been recommended in chronic catarrh and rheumatism. The oil forms both an odoriferous and suitable adjunct to liniments and pomades.

Lavender is now seldom, or never, used in English practice. It is cultivated to some considerable extent about Mitcham and Beddington in Surrey, as well as at Hitchin in Hertfordshire, and Market Deeping in Lincolnshire. As cultivated at these places the plants are of small size, and are grown in rows.

"The flowers are usually cut with the stalks of full length, tied up in mats, and carried to the distillery, there to await distillation. This is performed in the same large stills that are used for peppermint. The flowers are commonly distilled with the stalks as gathered, and either fresh, or in a more or less dry state. A few cultivators distil only the flowering heads, thereby obtaining a superior product. Still more rarely, the flowers are stripped from the stalks, and the latter rejected *in toto*. According to the careful experiments of Bell (*Pharm. Jour.*, viii., 276, 1849), the oil made in this last method is of

exceedingly fine quality. The produce he obtained in 1846 was $26\frac{1}{2}$ ounces per 100 pounds of flowers entirely freed from stalks; in 1847, $25\frac{1}{2}$ ounces; and in 1848, 20 ounces; the quantities of flowers used in the respective years were 417, 633, and 923 pounds. Oil distilled from the stalks alone was found to have a peculiarly rank odour. In the distillation of Lavender it is said that the oil which comes over in the earlier part of the operation is of superior flavour."—*Pharmacographia*, p. 429.

Oil of Lavender is distilled in large quantities from the wild plant in Piedmont and in the south of France. Many sorts of this oil are known in commerce, but the finest quality realizes a price considerably below that produced at Mitcham.

From an allied species (*Lavandula Spica*) the oil known as oil of spike is obtained. It is chiefly distilled in the south of France. Its fragrance is not so delicate as that of *L. vera*, and its uses are chiefly in veterinary practice and in porcelain painting.

CXVI.

PRUNUS LAURO-CERASUS, L.

COMMON OR CHERRY LAUREL.

Nat. Ord. ROSACEÆ.

F. LAURIER-CERISE. G. KIRSCHLOBBER.

Description.—A small evergreen tree, 6 to 18 feet high, sending off long spreading branches, with an ash-coloured green bark. Leaves alternate, persistent, shortly petiolate, firm, coriaceous, ovate-lanceolate, or elliptical, with an acute curved apex, remotely and minutely serrated, furnished with 1 or 2 pairs of glands near the midrib at the base, deep shining green. Flowers in a spicate axillary raceme, rather shorter than the leaves; each flower supported by a short simple peduncle. Calyx inferior, urceolate, 5-toothed. Corolla of 5 small, white, obovate petals, inserted on the calyx. Stamens

about 18 in number, unequal, arising from the throat of the calyx, curved inwards in æstivation; filaments subulate; anthers roundish, yellow, innate, 2-celled, opening longitudinally. Ovary roundish oblong, 1-celled, containing 2 suspended ovules; style columnar, furrowed on one side; stigma reniform. Fruit an ovate, acute, glabrous drupe, shining purplish black, containing a smooth, compressed putamen, or stone. (Plate XXIX., fig. 3: (a) raceme of flowers; (b) calyx, opened to show the insertion of the stamens and pistil; (c) horizontal section of the fruit; (d) putamen.)

Distribution.—Caucasian provinces of Russia, North-Western Asia Minor, Northern Persia. It is said to have been discovered in the neighbourhood of Trebizond, by Belon, a French naturalist, between the years 1546 and 1550.

Clusius received it in 1576 from David Ungand, ambassador from the Emperor of Germany at Constantinople, with some other rare plants, all of which perished except the common Laurel and the horse-chestnut. It was sent by the name of *Trabison Cumasi*, or Date of Trebizond.

Gerard mentions it as a choice garden shrub, so that it must have been cultivated in England previously to 1597; and Parkinson informs us, that Mr. Cole, a merchant, who had a single plant in his garden at Highgate, used to cover it in winter with a blanket. The plant seems to have been known about this time as the Cherry Bay, for both Gerard and Ray refer to it as such. It is now a common ornamental plant in our shrubberies. Flowers April and May.

Etymology.—The name *Prunus* indicates its affinity to the plum and cherry. The specific name is derived from the resemblance of its leaves to those of the *laurus*, together with the similarity of its fruit to the cherry (*Cerasus*).

Properties and Uses.—The pulp of this fruit is eaten with avidity by birds, and is quite innocuous to man; and, though not unpleasant to the taste, has been occasionally used in puddings. The kernels or seeds of the drupe contain a poisonous principle, like those of the bitter almond, the peach, etc., and are employed to flavour various liquors. The leaves possess the same property, and are occasionally used in confectionery,

as well as to flavour custards, puddings, cakes, jellies, etc., while some persons infuse them in tea, coffee, and similar beverages. Their use in this country in medicine is for making Cherry-laurel water, the use of which, however, is now nearly superseded by hydrocyanic acid itself.

The different parts of this tree are nearly inodorous, except the flowers, which have considerable fragrancy, combined with a certain nauseous odour. The leaves are slightly styptic, and very bitter, and, when bruised, emit the odour of bitter almonds; these qualities are lost in drying.

Linneus informs us, that in Switzerland the plant is commonly and successfully used in pulmonary complaints. Baylies employed a saturated infusion in melancholy, asthma, rheumatism, and internally and externally against scirrhus tumours. Many other authors have recommended its use in similar diseases, but these have now become obsolete. Its chief interest, perhaps, lies in its poisonous properties. Many fatal cases have been recorded from the incautious use of the leaves. The most noted case, however, and one which produced an extraordinary sensation at the time of its occurrence, (1780), was that of Sir Theodosius Boughton, a young gentleman of fortune in the county of Warwick, who had nearly attained his 21st year. In the event of his dying before he attained his majority, the greater part of his fortune descended to his sister, who, with her husband, Captain Donellan, and their mother, Lady Boughton, resided with him. Sir Theodosius was labouring under a slight syphilitic affection, for which he was receiving medical advice. On the morning of August 31, he arose at an early hour, and apparently in perfect health, and asked for his usual draught, which was accordingly poured into a cup by his mother, Lady Boughton. He had not, however, swallowed more than half of it, when he complained of its nauseousness, and Lady Boughton observed that it had a strong smell of bitter almonds. In about two minutes after, he had a rattling and gurgling in his stomach, which continued about ten minutes, when he seemed inclined to sleep. In about five minutes more his eyes became fixed, his teeth clenched, and froth was running out of his mouth. He died in

about half an hour afterwards. Suspicion was naturally excited that death had been caused by poison, and an examination of the body after exhumation indicated that some such poison as laurel-water had been used. Captain Donellan was therefore arrested, and put upon his trial for murder. The celebrated John Hunter was a witness on the trial, and he gave it as his opinion, that apoplexy or epilepsy might have produced the effects stated ; but he has been much censured for the wavering and conflicting tenor of his evidence. A verdict of guilty was brought in against Captain Donellan, and he was accordingly executed. Sixteen drops of the essential oil, put upon the tongue of a rabbit, has killed it in from 9 to 20 minutes.

CXVII.

LACTUCA SATIVA, L. GARDEN LETTUCE.

Nat. Ord. COMPOSITÆ.*F.* LACTUE. *G.* LATTICH.

Description.—Root annual, tapering, fibrous. Stem erect, smooth, cylindrical, leafy, branched towards the summit, 2 or 3 feet high. Leaves alternate, roundish oblong, rugose, toothed and undulated at the margin, shining light green ; lowermost spreading, cauline ones smaller, amplexicaul, cordate, acute. Flowers in a large, spreading leafy corymb at the top of the stem. Involucre of several imbricated scales, or bracts, unequal, flat, acute, membranous at the margin. Corolla yellow, numerous, in several rows, perfect, equal, ligulate, abrupt with 4 or 5 teeth. Filaments 5, capillary, very short, anthers united into a tube. Ovary ovate, or oblong, surmounted by a filiform style, rather longer than the stamens, and tipped with 2 reflexed stigmas. Fruit an ovate-elliptical pericarp or achene, furrowed and compressed, surmounted with the stipitate pappus. Receptacle naked and dotted. (Plate XXIX., fig. 4: (a) involucre, magnified ; (b) entire flower or floret ; (c) the ripe fruit, crowned with the pappus.)

Distribution.—Native country unknown; perhaps originally from the East Indies, and possibly only a cultivated form of *L. Scariola*. The Lettuce is now cultivated extensively throughout Europe. Flowers July.

Etymology and History.—The generic name is derived from *lac*, milk, in allusion to the milky juice which exudes from the wounded stem. There is every reason to think that the Lettuce is the *θηπιδάξ* of Dioscorides, and of Theophrastus.

It was much esteemed as a salad by the Romans. A prejudice, however, was for some time entertained against it. "*Venerem enervandi*;" perhaps derived from the works of Dioscorides. Hence Eubolus Comicus designated it *the food of dead men* (*mortuorum cibus*). After Antonius Musa had cured Augustus of hypochondriasis by means of this plant it came into great repute. It was eaten after vinous liquors, to correct their effects, and at night to procure sleep.

In the reign of Domitian the practice of eating it after supper appears to have been reversed; and the poet Martial inquires, "Why the Lettuce, which was partaken of last at supper by our ancestors, should begin our repasts?"

We are also informed by the pages of mythology, that after the death of Adonis, Venus threw herself on a bed of Lettuces, to mitigate her passion, and assuage her grief. Galen tells us that when, from the infirmities of age and excessive study, he was unable to sleep, he found the Lettuce eaten at night a valuable hypnotic; but he also used the decoction of the plant.

Properties and Uses.—The medicinal qualities of Lettuce depend on a milky juice, which is contained immediately under the cuticle, and exudes on the slightest laceration of the stem or flower-stalks. This juice is pellucid and colourless when existing in the proper vessels of the plant, but becomes milky when first exposed to the air, and afterwards acquires a brownish colour, resembling that of opium; it has been called *lactucarium*. When dry it is hard and brittle, like gum, but quickly assumes a pasty consistence if exposed to the open air. *Lactucarium*, however, is obtained chiefly from *L. virosa* and *L. Scariola*, both native plants, and *L. altissima*, a native of the Caucasus, but cultivated in France.

Besides the refreshing and relaxing properties of this vegetable, it possesses, as has been shown, narcotic powers. A decoction of the leaves has been used as a drink in constipation, gastric, and intestinal engorgements, and to alleviate pains accompanied with heat and irritation. Galen, Dioscorides, and Celsus, all attribute narcotic properties to this plant, and writers of comparatively recent times have even proposed it as a substitute for opium. Lettuce emulsions, made with the seeds, have been supposed to be more refrigerant than those of the almond, and hence have been sometimes preferred. The soporific properties so generally ascribed to the Lettuce in old times is still supposed by some to exist in a more powerful degree in lactucarium. Nevertheless it is seldom used.

The plant is generally blanched by gardeners, and though, in this state, it is more tender, sweet, and succulent, it may not be quite so wholesome as in its natural state, especially if the ease with which it is digested, even by dyspeptic patients, be correctly attributed to its slight narcotic principle.

CXVIII.

LILIUM CANDIDUM, L. WHITE LILY.

Nat. Ord. LILIACEÆ.*F.* LIS BLANC. *G.* WEISSE LILIE.

Description.—Root bulbiferous, consisting of several thick, fasciculated descending fibres, springing from a fleshy platform, which supports the ovoid, yellowish, scaly body, named the bulb. Stem simple, erect, cylindrical, leafy, 2 to 3 feet high. Leaves alternate, scattered, numerous, elliptical, and lanceolate, very smooth, undulated, light shining green. Flowers axillary and terminal, of large size, brilliant whiteness, and fragrant odour; each flower supported on a short bracteated peduncle, at first erect, afterwards slightly drooping. Perianth campanulate, consisting of 6 ovate-lanceolate, obtuse, some-

what revolute segments, traversed internally by a nectareous longitudinal channel, 3 alternately rather smaller. Stamens 6, with subulate filaments, and oblong, versatile, yellow anthers, which burst inwardly. Pistil consists of a superior, oblong, trigonal, furrowed ovary, a cylindrical clavate style, and a trigonal, obtuse, downy stigma. Fruit 3-sided, oblong, 3-celled, 3-valved, many-seeded; seeds packed upon one another in 2 rows. (Plate XXX., fig. 1: (a) pistil and stamens; (b) capsule; (c) seeds.)

Distribution.—Southern Europe to Corsica, Northern Persia and Caucasus. A very old inhabitant of the English flower garden. Flowers June and July.

Etymology and History.—The generic name is derived from the Celtic *li*, signifying whiteness, the flowers being considered the emblem of whiteness. The Greek term for the Lily was *λειριον* or *λιριον*; it was also called *κρινον* in common with the narcissus, hyacinth, etc. There is no doubt that the *Lilium Album* of Pliny is our White Lily. The ancients feigned that the flowers were originally of a deep yellow colour, but when Jupiter removed Hercules from the breast of Juno, some of her milk falling upon them rendered them white.

Pliny ranked the Lily as second only to the rose; and Anacreon in his odes compares Venus to this flower.

Our own poets have not forgotten the praises of the Lily. Thomson's beautiful paraphrase of St. Matt. vi. 28 is familiar to every reader.

Properties and Uses.—The bulb is inodorous; to the taste it is insipid and sweetish, and, when masticated, rather bitter and extremely mucilaginous. Placed in water, it is soon decomposed, and becomes intolerably fetid. Linneus says that the flowers have been used in epilepsy. Infused in oil they have been applied to painful and obstinate tumours. The petals of the Lily steeped in brandy are a favourite domestic remedy for cuts, and are believed to possess powerfully healing properties. The distilled water has been prescribed in coughs, asthma, and other pulmonary affections. And it has been in great esteem as a cosmetic, to preserve and improve the

freshness of the complexion, and to remove pimples and freckles. Geoffroy speaks very decidedly in favour of it, provided a small quantity of salt of tartar be dissolved in it. The anthers are esteemed anodyne, antispasmodic and emmenagogue, and were formerly exhibited with the view of favouring the expulsion of the foetus in difficult parturition, and to promote menstruation. The bulb itself, made into bread, has been eaten in cases of dropsy.

CXIX.

CONVALLARIA MAJALIS, L. LILY OF THE VALLEY.

Nat. Ord. LILIACÆ.

F. MUGUET. G. MAIBLUME.

Description.—Rhizome perennial, creeping, slender, whitish, and fibrous. Stem a semi-cylindrical scape, 4 to 6 inches high, supporting two radical, broad, ovate-lanceolate, entire, bright green leaves, sheathing at the base. Flowers terminate the scape in a short, almost unilateral, raceme; each flower pendulous, and supported on a short peduncle, with a single lanceolate, membranous bract at the base. Perianth pure white, fragrant, globose-campanulate, 6-cleft; the segments curved back. Stamens 6, with short subulate filaments, and 2 small obsolete glands at the base, where they are inserted into the perianth, terminated by erect, pyramidal, acute anthers. Ovary superior, ovate, 3-celled, surmounted by a thick cylindrical style, and trigonal, obtuse stigma. Fruit a globose scarlet berry, with pulp of a similar colour, 3-celled (the dissepiments obliterated), each cell containing 1 or 2 roundish angular seeds. (Plate XXX., fig. 4: (a) the root-stock; (b) corolla, opened to show the stamens; (c) pistil; (d) berry; (e) the same cut transversely; (f) seed.)

Distribution.—Europe, Northern Asia. In woods in England. Naturalized in Scotland and Ireland. Flowers May and June.

Etymology and History.—The generic name is formed from *convallis*, a valley, and answers to the common appellation of the plant. It has been called, provincially, May Lily, May-blossom, and, as Gerard tells us, *Liriconfancie*. Some writers suppose this plant to be the *Lilium Vernum* of Theophrastus.

The modest beauty and delicate fragrance of the Lily of the Valley have rendered it a great favourite with the poets.

“Valley-lilies, whiter still
Than Leda's love.”

KEATS' *Endymion*, p. 10.

“The Lily, silver mistress of the vale.”

CHURCHILL.

Shelley beautifully describes it in his *Vision of Spring-flowers*, as the—

“Naiad-like Lily of the vale,
Whom youth makes so fair, and passion so pale,
That the light of its tremulous bells is seen
Through their pavilions of tender green.”

Properties and Uses.—The rhizome exhales a pleasant odour, although different from that of the flowers; it is sweetish to the taste at first, but afterwards disagreeably bitter. The recent flowers are very sweet and fragrant to the smell, while to the taste they are somewhat acrid and bitter. The odoriferous principle, like that of the white Lily, is fugitive, but may be obtained by distillation, both in water and spirit.

The flowers are cephalic, deobstruent, and diuretic, and have been employed, reduced to powder, as an errhine in apoplexy, epilepsy, coma, and vertigo; and for their other qualities, given internally in a variety of complaints. A spirit distilled from the flowers was said to be an excellent application for sprains and rheumatism. In some parts of Germany a wine is made from the flowers mixed with raisins, and used for the same purposes as the water and spirit. The root is similar in properties to the flower: watery or spirituous extracts of either, were supposed to act as gentle stimulating

aperients and laxatives; and the fruits were used in intermittent fevers and as a vermifuge.

The plant is eaten by sheep and goats, but refused by other animals.

CXX.

TILIA EUROPÆA, L. LIME, OR LINDEN-TREE.

Nat. Ord. TILIACEÆ.

F. TILLEUL. G. LINDE.

Description.—A noble tree, often 50 or 60 feet high; bark thick and fissured; wood light, soft, and white; branches numerous, smooth, somewhat angular when young. Leaves cordate, acuminate, serrated, quite smooth above, glabrous beneath, except a woolly tuft at the origin of each vein, twice the length of the footstalks. Inflorescence a stalked cyme, springing from the middle of a large, membranous, axillary, lanceolate, yellowish bract, which falls off with the fructified cyme. Calyx 5-parted, deciduous; segments ovate, lanceolate, concave, and acute. Corolla composed of 5 obovate spreading petals of a pale lemon colour, tapering into a short claw, without a scale at the base, rather longer than the calyx. Stamens numerous, rather longer than the corolla; filaments erect, subulate; anthers cordate, yellow. Ovary superior, globose, villous, 5-celled, surmounted by a cylindrical, deciduous style, crowned by a subcapitate stigma. Fruit coriaceous, downy, oblong-turbinate, by abortion usually 1-celled, and 1 or 2 seeded. (Plate XXX., fig. 2: (a) entire flower, magnified; (b) fruit; (c) transverse section of the same; (d) seed.)

Distribution.—Europe generally, except the extreme north. Flowers July. *T. parvifolia*, L., a small tree growing in woods from Yorkshire southwards, is by some considered to be the English wild form of *T. europæa*.

Etymology.—The origin of the term *Tilia* is rather obscure;

some writers suppose that it is derived from *πτελεα*, an elm, in reference to the shape of the leaves; according to others, it is an alteration of *telia*, from *telum*, a dart, in allusion to the use of the wood. None of the Greek writers mention this tree, except Theophrastus, whose *φελυρα* is supposed to refer to it, on the authority of Pliny. The Lime, Lin or Linden tree, was called Lind in the Anglo-Saxon. The family name of the illustrious Linneus, or as he is termed in his native country, Linné, is said to have been derived from a famous Lime-tree which grew in the vicinity of the place where his ancestors resided.

Properties and Uses.—The inner bark is tough and pliant, and was formerly made into ropes. Russian bass, or bast, used by gardeners, is also the inner bark of this tree. A coarse but smooth paper has been manufactured from the bark; and Ruger states that, from the outer bark, he prepared a fine rose-coloured lake. With the twigs baskets and cradles are sometimes made. The wood, being white, soft, smooth, and close-grained, and not liable to be worm-eaten, is much valued by carvers: many of Gibbons' exquisite productions in this material are extant, in various churches and palaces; as in the choir of St. Paul's, the Duke of Devonshire's at Chatsworth, Trinity College Library at Cambridge, etc. It is also used by shoemakers for cutting-boards, as it does not blunt the knife; and is much sought after by turners, for making small bowls, boxes, and other articles of light ware; but vessels made of it, when turned thin, are not adapted for holding water, as it resembles ivy-wood in porosity. Lime-wood forms, also, excellent charcoal for gunpowder, and for painters' scribbets. The flowers, which are very fragrant, easily ferment, and might be used for making wine; a fine-flavoured brandy was distilled from them by Marcgraf; they are much frequented by bees, and a very fine kind of honey is obtained from Kowno in Lithuania, where there are large forests of this tree. The fruit, or nut, contains an oleaginous substance, and when roasted, has been proposed as a domestic substitute for chocolate. The sap of this useful tree abounds in mucilage, which, by repeated boiling and clarification, furnishes a kind of sugar;

it may be procured by making incisions in the trunk and branches, as from the birch, and by fermentation may be made into wine.

The leaves are relished by cows, horses, goats, and sheep, and may be dried and preserved as winter fodder. In autumn, the milk of cows that feed upon them is reported to acquire a very unpleasant taste.

The flowers have a very sweet fragrant odour, which is nearly dissipated in drying; and a faint, sweetish, subviscid taste. The bark has no sensible properties, but a slightly bitter taste. The flowers were supposed to have an anodyne and antispasmodic effect, and by the ancient physicians were esteemed peculiarly cephalic; hence they were employed by them in various diseases of the head, as apoplexy, vertigo, and the like. Mizaldus and Paulinus especially confirm the efficacy of the distilled water in the cure of epilepsy. Hoffmann, too, asserts that he knew a case of chronic epilepsy cured by the use of an infusion of the flowers drunk as tea. Such, indeed, was the former exalted anti-epileptic reputation of the Lime-tree, that even epileptic persons sitting under its shade were reported to be cured.

All parts of the plant, especially the inner bark, contains a soft mucilage, which has been applied to burns, scalds, and inflammatory swellings.

This tree is much esteemed for forming avenues, and its fragrant flowers, "at dewy eve distilling odours," add greatly to the estimation in which it is held. Du Hamel states, that it was first cultivated for ornament, by the French, in the time of Louis XIV.; and, at Evelyn's suggestion, it was much employed in this way in England. Fenelon decorates his enchanted isle of Calypso with flowering Lime-trees.

CXXI.

GLYCYRRHIZA GLABRA, L. LIQUORICE.

Nat. Ord. LEGUMINOSÆ.*F. RÉGLISSE, BOISDOUX. G. SÜSSHOLZ, LAKRIZENHOLZ.*

Description.—Root perennial, long, cylindrical, branched, far spreading, about the thickness of a finger, reddish brown externally, yellow and juicy within. Stems erect, strong, smooth, branched, pale green, 3 or more feet high. Leaves alternate, petiolate, pinnate, with from 3 to 5 pair of ovate, entire, obtuse leaflets, and a terminal one; pale-green. Flowers disposed in lax, axillary, spike-like racemes. Calyx persistent, tubular, divided obliquely into 2 lips: the upper of 4 rather unequal segments, the lower simple and linear. Corolla papilionaceous, pale purplish blue; vexillum or standard erect, lanceolate, concave; alæ or wings, oblong, obtuse; carina, or keel, of two distinct petals, with a claw as long as the calyx. Stamens 10, in 2 parcels; anthers roundish. Ovary short, style filiform, stigma obtuse. Fruit a legume, smooth, oblong, compressed, acute, about an inch in length, 1-celled, containing 3 or 4 small, reniform seeds. (Plate XXX., fig. 3: (a) section of the root; (b) pistil and stamens; (c) vexillum; (d) ala; (e) keel; (f) legume.)

Distribution.—Over a great extent of the warmer regions of Europe to Central Asia. Cultivated in England at Mitcham, Surrey, and in some parts of Yorkshire. Flowers June to September.

Etymology and History.—The generic name, from the Greek γλυκυρριζα, is compounded of γλυκυς, sweet, and ριζα, a root. Liquorice is said by Théis to be a corruption of the French Réglisse, which is also corrupted from Glycyrrhiza. Hippocrates mentions γλυκυριζα, and Theophrastus γλυκεια and σκυθακη; but from the description given by Dioscorides, the plant used by the ancients would seem to be the *Glycyrrhiza echinata*, which is very common in the East, and resembles *G. glabra* in qualities, though said to be inferior to it.

The exact date of the first cultivation of Liquorice in England is not known. It is said by some to have been in 1558. It appears, however, pretty certain that it was cultivated in the north of England at the latter part of the 16th century.

Cultivation.—Several varieties of *G. glabra* are known; but two, namely *typica* and *glandulifera*, are the chief sources of Liquorice of commerce. The first form is described in the *Pharmacographia*, p. 156, as being indigenous to Portugal, Spain, Southern Italy, Sicily, Greece, Crimea, the Caucasian Provinces and Northern Persia; and is cultivated in England, France, and Germany. The second occurs in Hungary, Galicia, Central and Southern Russia, Crimea, Asia Minor, America, Siberia, Persia, Turkistan and Afghanistan.

As cultivated at Mitcham and in Yorkshire, the plants are set in rows, and the roots are dug up at the beginning of winter when the plants are about three years old.

"Every portion of the subterraneous part of the plant is carefully saved; the roots proper are washed, trimmed, and assorted, and either sold fresh in their entire state, or cut into short lengths and dried, the cortical layer being sometimes first scraped off. The older runners, distinguished at Mitcham as *hard*, are sorted out and sold separately; the young, called *soft*, are reserved for propagation. In Calabria, the singular practice prevails of growing the Liquorice among the wheat in the cornfields."—*Pharmacographia*, p. 157.

Dried Liquorice-root is known in British commerce in two forms, either peeled or unpeeled. The English produce occurs in pieces 3 or 4 inches long, and about the thickness of the finger, but its supply is limited. Spanish Liquorice, which is also known as Tortosa or Alicante Liquorice, consists of the unpeeled roots, and is imported in bundles several feet long. Alicante Liquorice is, however, sometimes imported in bags or loose. Russian Liquorice, which comes either peeled or unpeeled, is imported in large balls from Hamburg. It is much used in England, and has a slightly bitter taste. It is supposed to be the produce of *G. glabra* var. *glandulifera*.

Extract of Liquorice, the inspissated juice, has been known

from a very early period. At the present time its manufacture is carried on principally in Spain, Southern France, Sicily, Calabria, Austria, Southern Russia, as well as in Greece and Asia Minor. The English supplies, however, come almost exclusively from Calabria, Sicily, and Spain. Several kinds of Liquorice juice are known in commerce, mostly made in the form of short cylindrical sticks, varying much in price according to quality. The best is the Solazza-juice, manufactured at Corigliano, in Calabria. This is usually shipped at Naples, in comparatively small quantities.

Properties and Uses.—The root is somewhat nutritive, and endowed with demulcent, incrassating, and temperating properties, all which it has enjoyed from the infancy of the science of medicine. Doubtless, to the latter virtue may be attributed its special reputation with the ancients of quenching thirst. Theophrastus, Dioscorides, and Pliny employed it in dropsy, in which affection thirst is often a distressing symptom. In decoction it is well adapted for coughs, hoarseness, phthisis, and other pulmonary ailments. Finely powdered, it was once sprinkled over erysipelatous parts to absorb the serous discharge, and has frequently been employed to prevent friction, and the consequent inflammatory state of the skin to which infants are subject; but for these purposes it has given way to other means.

Liquorice-root is employed in this country at the present time "for making extract of Liquorice, and in some other pharmaceutical preparations. The powdered root is used to impart stiffness to pill masses, and to prevent the adhesion of pills. Liquorice has a remarkable power of covering the flavour of nauseous medicines. As a domestic medicine, Liquorice-root is far more largely used on the Continent than in Great Britain. . . . Stick Liquorice is sucked as a remedy for coughs, and by children as a sweetmeat. It is also used in lozenges, and in some pharmacopœias is admitted as the raw material from which to prepare soft extract of Liquorice. The block Liquorice, of which a large quantity is imported, is chiefly used in the manufacture of tobacco for smoking and chewing."—*Pharmacographia*, pp. 159, 162.

CXXII.

RUBIA TINCTORUM, L. DYERS' MADDER.

Nat. Ord. RUBIACEÆ.

F. GARANCE. G. KRAPP, FÄRBER-ROTHE.

Description.—Root perennial, long, cylindrical, creeping, jointed, branched, light or dusky red externally, greyish red or yellowish internally. Stems annual, quadrangular, slender, procumbent, diffuse, 2 to 3 feet long; angles covered with short, rough, hooked points. Leaves large, sessile, elliptical, lanceolate, shining cinereous green, arranged in whorls, of 4, 5, or 6 together, at each joint of the stem; margin and nerves covered with asperities. Flowers in small axillary and terminal panicles, upon branched peduncles. Calyx small, divided at the margin into 4 nearly obsolete teeth. Corolla yellow, sub-campanulate, divided at the limb into 4 or 5 deep, ovate, acute segments. Stamens equal in number to the segments of the corolla; filaments short, tipped with elliptical anthers. Ovary 2-lobed, nearly globose, with 2 short, slender styles, each terminated by a globose capitate stigma. Fruit nearly globose, didymous, consisting of two bodies (*mericarps*), united by their inner face, dark purple, juicy, each containing a single, ovate-globose seed, one generally abortive. (Plate XXXI, fig. 1: (a) the root; (b) entire flower; (c) corolla, opened to show the stamens; (d) pistil; (e) fruit.)

Distribution.—Levant, Southern Europe, Caucasus. Cultivated in this country prior to the time of Gerard. Flowers May and June.

Etymology.—There can be little doubt of this species of Madder being identical with the *ερυθροδανον* of Dioscorides and of the other Greek writers. It was so called from *ερυθος*, red, in allusion to the colouring property of the roots; from which it has also obtained the appellation *Rubia*, from *ruber*, red.

Cultivation.—Madder is extensively cultivated for the sake of its roots, which afford a valuable dye. This country is sup-

plied chiefly from the Levant, but quantities are also brought from Holland and France. Its culture has been attempted at different times in Britain, when our commerce with the Dutch was interrupted by political dissensions. The result of the trial has been, that it may be cultivated here to as great perfection as in any other country, but not at so low a price.

Properties and Uses.—The foliage of the Madder plant has been said to furnish excellent food for cattle. The root, however, is the only really valuable part: it affords a red dye for wool, silk, or cotton. Its use in this country, though still extensive, has been of late years largely superseded by the coal-tar dyes. One of the most extraordinary properties belonging to Madder is said to be that of tinging the bones of animals that feed upon it of a red colour.

The root has a feeble, unpleasant odour, and a bitterish, somewhat styptic taste. The most marvellous effects were attributed to it by the sages of old. Hippocrates, Dioscorides, Galen, and Pliny considered it capable of promoting the urine and menstruation, curing dysentery and jaundice, and of expelling the fetus and secundines. It has also been recommended by later authorities for similar and other complaints.

Madder formed one of the five greater aperient roots, and was given in substance. Its use in medicine is now obsolete.

CXXIII.

ADIANTUM CAPILLUS-VENERIS, L.

TRUE MAIDENHAIR.

Nat. Ord. FILICES.*F.* CAPILLAIRE. *G.* FRAUENHAAR.

Description.—Rhizome perennial, oblique, 3 or 4 inches long, about the thickness of a quill, brownish, clothed with shaggy hairs, and occasional slender fibres constituting the true root. Stem or stipes erect, filiform, smooth, purplish

shining black, 4 to 9 inches high. Leaflets alternate, petiolate, delicate green, lowermost pinnate, wedge or fan-shaped, smooth, thin, veiny, unequally lobed; sterile ones serrated. Fructification composed of small linear masses, called sori, in the crenatures of the pinnules. Each capsule contains several minute spores. (Plate XXXI., fig. 3: (a) leaflet, magnified; (b) summit of the leaflet turned back to show the capsules, magnified; (c) capsule, magnified.)

Distribution.—Europe, from France southwards, Western Asia, Northern and Southern and Tropical Africa, Western Siberia, India, Tropical and Subtropical America, Polynesia. It occurs in this country on damp rocks and walls, especially near the sea, but is rare. Fructification May to September.

Etymology.—The generic name is derived from *adiavroc*, dry; because it is not affected by the water which trickles upon its leaves. In vain, says Pliny, you plunge the *Adiantum* in water, it always remains dry. The specific name, *Capillus Veneris*, Venus' hair, according to Pliny, refers to the property, attributed to this plant, of strengthening and embellishing the hair: others suppose that it alludes to the elegant and shining stems. The English term, Maidenhair, has a similar meaning.

Properties and Uses.—Maidenhair has an agreeable though feeble aroma, and a slightly bitter styptic taste. The medicinal virtues of this plant are not very obvious; nevertheless, as an ordinary demulcent and expectorant, it has been given in catarrh, dry cough, and other pulmonary affections. A syrup of Maidenhair is used in France in large quantities, under the name of *capillaire*. This syrup, freely diluted with water, makes a very agreeable drink for invalids, and in its pure state, taken in small and repeated doses, it has been said to lessen the tightness and violence of chronic coughs.

The simple infusion of the plant in water, sweetened in the manner of tea, has been recommended for the same purposes as the syrup of Maidenhair.

CXXIV.

ORIGANUM VULGARE, L. MARJORAM.

Nat. Ord. LABIATÆ.

F. ORIGAN. G. GEMEINER DOST.

Description.—Root perennial, creeping, and furnished with numerous slender fibres. Stems erect, leafy, quadrangular, purplish, clothed with short recurved downy hairs, dichotomously branched towards the top. 12 to 18 inches high. Leaves opposite, petiolate, ovate, entire, or very slightly serrate, fringed with short hairs, smooth, deep yellowish green above, paler and somewhat downy beneath. Flowers axillary and terminal, in dense paniced spike-like heads; each flower subtended by an ovate-oblong, brownish purple, sessile bract, longer than the calyx. Calyx cylindrical, striated; mouth of the tube closed with whitish hairs; limb divided into 5 nearly equal, purplish teeth. Corolla bilabiate, light purplish rose; tube enlarged upwards, longer than the calyx; upper lip erect, bifid, obtuse; lower lip patent, with 3 nearly equal, rounded lobes, middle lobe crenate. Stamens didynamous, erect, 2 rather longer than the corolla, with ovate 2-lobed anthers. Ovary 4-parted, style filiform, stigma bifid, acute. Fruit consists of 4 ovate nutlets, or achenes, situated in the bottom of the persistent calyx. (Plate XXXI., fig. 2: (a) calyx and bract, magnified; (b) entire flower, magnified; (c) stamen; (d) pistil; (e) section of the calyx to show the nutlets.)

Distribution.—Europe (Arctic), Northern Africa, Siberia, Dahuria, Western Asia to the Himalaya. Introduced in North America. Not unfrequent in dry copses and hedge-banks in this country. Flowers July to September.

Etymology.—The generic name is derived from *origanon*, from *ὄρος*, a mountain, and *γάρος*, joy; these plants may truly be called the joy of the hilly and romantic places in which they grow. Bauhin considers the *Origanum vulgare* as the *Cunilla bubula* of Pliny. The common name, Marjoram, is thought to be derived from *Marjamie* (or *Maryamych*), the Arabic name for this plant.

Properties and Uses.—The dried leaves are very grateful, and have been recommended as a substitute for tea. They may also be employed like the sweet Marjoram for culinary purposes, to give relish to soups, omelets, stuffings, etc. The country people use the flowering tops to dye linen cloth purple. The dried plant, suspended in a cask of beer, is said to prevent or correct the acidity of that liquor. According to the Swedish experiments, goats and sheep eat it, horses are not fond of it, and kine refuse it.

The leaves and flowering tops have an agreeable aromatic smell, resembling that of Wild Thyme, and a warm, pungent somewhat acrid taste. Marjoram has tonic, stimulant, and carminative properties; hence it has been much lauded in asthma, coughs, and various spasmodic affections. It has also been considered resolute, sudorific, diuretic, and emmenagogue. Externally it has been particularly recommended in fomentation, or applied in little bags to indolent tumours and swellings, and either in fomentation or baths against rheumatism, obstructions of the viscera, etc. The infusion, or tea, has been much praised in flatulence, headache, and in nervous and hysterical complaints.

The sweet Marjoram, (*O. Majorana*,) is well known in gardens in this country, being frequently used for culinary as well as medicinal purposes. It is specifically distinguished from the wild kind, by its roundish, thin, compact spikes, and more elliptical leaves, as well as by its general habit: it possesses similar properties, and the one may always be substituted for the other.

CXXV.

ALTHÆA OFFICINALIS, L. MARSH-MALLOW.

*Nat. Ord. MALVACEÆ.**F. GUIMAUVE. G. EIBISCH.*

Description.—Root perennial, thick, cylindrical, tapering, whitish, somewhat ligneous, furnished with many strong fibres. Stems annual, erect, cylindrical, leafy, and downy, 2 to 3 feet high, branched towards the top. Leaves alternate, petiolate, about 2 inches long, broadly ovate, somewhat cordate, with from 3 to 5 angular lobes, plaited, unequally serrate at the margin, and with 2 stipules at the base of each footstalk; soft to the touch, being covered with a very dense, velvety, stellate pubescence. Flowers nearly sessile, in small panicles, proceeding from the axils of the upper leaves. Calyx double, the outer consists of 6 to 9 deep segments; inner has five broader concave divisions. Petals 5, obcordate, emarginate, twice as long as the calyx, unguiculate, of a light roseate colour, marked with deeper veins. Filaments numerous, white, connected at the base into a cylindrical column, free above, tipped with reniform 1-celled anthers. Ovary consists of several carpels disposed in a circle, with a cylindrical style, and numerous subulate stigmas. Fruit composed of numerous carpels, arranged in a circle round the base of the style, each containing a single, reniform, compressed brown seed. (Plate XXXI., fig. 4: (a) the double calyx; (b) section of corolla and stameniferous column; (c) pistil; (d) orbicular depressed fruit, from which one of the carpels has been removed; (e) carpel, isolated.)

Distribution.—Europe, from Denmark southwards, Northern Africa, Siberia, Western Asia. Introduced to North America. Abundant in many parts of England, especially in marshes near the sea-coast. Flowers August and September.

Etymology.—This plant is in all probability the *αλθαία* and *βίσκος* of Dioscorides; the former, from which the generic name is derived, comes from *αλθος*, a remedy, in allusion to the

eminent medicinal properties of the Mallow. Hence also the old names *Vismalva*, *Bismalva*, *Malvaviscus*, etc. The French name *Guimaure* signifies Viscous Mallow.

Properties and Uses.—The root of Marsh-mallow is about the thickness of the finger, covered with a greyish epidermis, white internally: inodorous, sweetish and very mucilaginous when masticated. It contains more than half its weight of sweet and viscous mucilage, which is also found in the other parts of the plant, but in much less quantity. The earliest medical authorities highly extol the virtues of this plant. Dioscorides recommends it in many of the diseases against which it is employed in the present day. Pliny states, that Hippocrates administered the decoction of the root to those labouring under loss of blood, asthma, or dysentery, and that he also applied it to contusions and lacerations of the muscles, nerves, etc. It has been considered emollient, demulcent, lubricating, and anodyne, and has consequently been employed for allaying heat and irritation, and to diminish the pain of inflamed parts. The infusion or decoction has been specially recommended in the first stage of acute phlegmasiæ, in active hemorrhages, pulmonary catarrhs, hoarseness, pleurisy, diarrhœa, dysentery, etc. Externally it has been employed in numerous affections: in decoction, as a fomentation for the eyes in acute ophthalmia, in external abrasions, and in cutaneous eruptions; as a gargle, in affections of the gums, apthæ, and sore throat.

Its uses at the present time are as a demulcent and an emollient for poultices. It is much more largely used on the Continent than in England.

CXXVI.

PEUCEDANUM OSTRUTHIUM, Koch.

GREAT MASTERWORT.

*Nat. Ord. UMBELLIFERÆ.**F. IMPERATOIRE. G. MEISTERWURZ.*

Description.—Root perennial, thick, fleshy, knotted, nearly tuberous, with long creeping fibres. Stem cylindrical, thick, fistulous, striated, erect, nearly simple, 1 to 2 feet high. Leaves alternate, petiolate, lower ones biternate, upper less compound; leaflets broad, ovate, lobed, incised, serrate, deep green, with large dilated membranous sheaths at the base of the petiole. Flowers in large compound plano-concave umbels, without an involucre; umbellules with an involucre of several straight subulate leaves. Calyx an obsolete margin. Corolla small, whitish, composed of 5 obcordate, equal petals, incurved at the joint. Stamens 5, with subulate, erect, white filaments, longer than the corolla. Anthers roundish double. Ovary inferior, roundish, striated, truncate, surmounted by 2 subulate spreading styles, and an obtuse stigma. Fruit lenticular, compressed, girt with a membranous margin, consisting of 2 carpels, or mericarps, each with 3 distinct intermediate ridges, lateral ones obsolete, containing a single seed, compressed on its inner face. (Plate XXXII, fig. 1: (a) entire flower, magnified; (b) pistil, natural size; (c) fruit, magnified.)

Distribution.—Central Europe. In moist meadows and woods in some parts of England, but not frequent, and probably only a naturalized plant. Flowers July and August.

Etymology.—The generic name is derived from *πενκη* a pine, and *δωρος*, dwarf, on account of the gum-resin afforded by some of the species. The former name, *Imperatoria*, of which there are synonyms in nearly all the European languages, refers to its imperial and supereminent qualities.

Properties and Uses.—The root is marked with annular furrows and ridges, greyish brown externally, white within; on being cut in its recent state it exudes a yellowish white,

bitter, acrid milk. It has a powerful aromatic odour, and a pungent, bitter, disagreeable taste; when masticated it bites the tongue, and causes a sensation of heat in the fauces.

By the ancients it was considered stomachic, diuretic, diaphoretic, sialogogue, expectorant, and emmenagogue. Forestus speaks of its efficacy in hysteria, and Hoffmann had such a high opinion of its virtues, that he calls it a "divine remedy" in colics and flatulencies; he also praises its effects in paralysis, apoplexy, suppression of the menses, dropsy, and intermittent fevers. Other writers have recommended it for various other diseases, and Simon Pauli made an ointment of it with lard, which he used in the treatment of some cutaneous affections, as ring-worm.

CXXVII.

SPIRÆA ULMARIA, L.

MEADOW-SWEET, OR QUEEN OF THE MEADOWS.

Nat. Ord. ROSACEÆ.

F. REINE-DES-PRÉS. *G.* MÄDESÜSS.

Description.—Root perennial, cylindrical, with numerous fibres, dark brown externally, reddish or yellowish within. Stem erect, simple, branched upwards, leafy, angular, smooth, pale green, purplish below, 3 to 4 feet high. Leaves alternate, petiolate, interruptedly pinnate; leaflets opposite, sessile, ovate-oblong, acuminate, smooth above, downy beneath, toothed and serrated at the margin; terminal leaflet very large, 3-lobed, with roundish acute stipules at the base, joined to the petiole. Flowers in large, terminal, compound cymes. Calyx campanulate, 5-cleft; segments ovate, obtuse, concave, reflexed. Corolla of 5 obovate, roundish, unguiculate, yellowish white, spreading petals. Stamens numerous; filaments inserted into the calycine disk. Anthers ovate, obtuse, innate, 2-celled. Ovaries about 8 in number, obovate, obtuse, smooth, and compressed; each terminated by a clavate, elongated, reflexed style, and a

capitate pendulous stigma. Fruit consists of as many carpels as there are ovaries, erect, glabrous, twisted, 1-celled, 2-valved, few-seeded. (Plate XXXII., fig. 3: (a) entire flower; (b) petal; (c) calyx and stamens, the petals removed; (d) pistils; (e) carpel.)

Distribution.—Europe (Arctic), Siberia, Dahuria, Iceland. In meadows and by the sides of ditches and ponds in this country. Flowers June to August.

Etymology.—The generic term has been already explained under DROPWORT (*Spiræa Filipendula*). The specific name, from *ulmus*, an elm, refers to the elm-like shape and appearance of the leaves. It has received the English names of Meadow-sweet, Mead-sweet, and Queen of the Meadows, from the beauty and fragrance of the blossoms. Some of the foreign synonyms signify Goat's-beard, also alluding to the flowers.

Properties and Uses.—The roots are very astringent, and have been strongly recommended for tanning leather. According to Bryant, the Russians prepare a kind of granulated flour from these roots, possessing nutritious qualities. Olaffen states that the Icelanders obtain a durable black colour from a decoction of the whole plant. The scent of the flowers is reputed to drive away noxious insects from granaries. The foliage is eaten by goats, sheep, and swine; but refused by horses and cows.

The root has a weak smell, and a styptic, astringent taste; it has been much praised for its efficacy in various kinds of fever and alvine fluxes. By Simon Pauli and others, a decoction of the root in wine has been strongly recommended. The infusion is of a reddish colour, and heavy odour. The recent flowers have a strong fragrant odour, similar to that of almonds. An essential oil, possessed of peculiar properties, has been obtained from the flowers by distillation in water.

The herbaceous part of the plant has similar properties, but in a slighter degree. The flowers were reckoned sudorific and antispasmodic, and a warm infusion has been given with success, to provoke the appearance of receding or languishing eruptive diseases. The distilled water is said to be a good

vehicle for other medicines, and the flowers themselves have been used to strew about the room where patients are lying with fever, etc.

CXXVIII.

MELILOTUS OFFICINALIS, L. MELILOT.

Nat. Ord. LEGUMINOSÆ.

F. MELILOT. *G.* STEINKLEE, HONIGKLEE.

Description.—Root annual or biennial, slender, elongated, slightly branched, and fibrous. Stem erect, firm, branched, with wide-spreading branches, glabrous, somewhat angular, 2 to 3 feet high. Leaves alternate, petiolate, composed of 3 obovate-oblong, obtuse, remotely serrated leaflets, with 2 small setaceous stipules at the base. Flowers small, yellow, pendent on their peduncle, and grouped in a lax, simple, elongated unilateral, axillary raceme. Calyx tubular, with 5 unequal teeth. Corolla 3 times as long as the calyx; standard obovate, roundish, streaked with brown; wings, or alæ, the length of the keel; carina, or keel, convex at the back, with a linear claw. Stamens 10, upper one free; anthers roundish. Ovary linear-ovate, compressed, with a filiform style and a simple stigma. Legume, or pod, pendulous, obovate, acute, wrinkled, at length blackish, and rather gibbous, 1 to 2-seeded, the seeds unequally cordate. (Plate XXXII, fig. 2: (a) entire flower, magnified; (b) calyx, stamens, and pistil; (c) detached petals of the corolla; (d) pistil.)

Distribution.—Europe, Siberia, Western Asia to India. Introduced in North America. Not unfrequent in England in fields and hedges. Very rare in Ireland. Flowers June to August.

Etymology.—The generic name is derived from *μελι*, honey, *λωτος*, lotus; as the plant resembles the lotus, and is much frequented by bees. This species does not appear to be the *μελιλωτος* of Dioscorides, or the Meliloton of Pliny. It is

called provincially Melilot-trefoil, Kings-clover, and Harts-clover.

Properties and Uses.—The foliage is relished by most animals, and is peculiarly agreeable to horses. It has been recommended for cultivation in this country. The Gruyeres cheese of Switzerland owes its flavour to the flowers and seeds of Melilot, which are bruised and mixed with the curd before it is pressed. In Moldavia the dried plant is put among furs, etc., to defend them from insects, whence it is called there Mottenkraut.

The recent plant has a sweet faint odour, and an herbaceous, bitterish, disagreeable taste; when dried, it has a more fragrant smell, resembling that of sweet vernal-grass (*Anthoxanthum odoratum*), or woodruff (*Asperula odorata*). It yields its odorous principle to water, either by simple infusion or distillation; and though the distilled water is not very odorous, it has been observed that it increases the perfume of other aromatics. Emollient, diuretic, anodyne, and carminative properties have been attributed to this plant, and it has been commended in dysentery, colic, obstructions of urine, and other widely differing affections, but without any just claim to regard. Externally, in fomentations and cataplasms, it has been more rationally prescribed, as an application to inflammatory tumours and swellings, pleuritic and gouty pains, etc.; and as a lavement in colic. A plaster of Melilot has, from the time of Galen and Mesue, enjoyed much reputation for discussing tumours, etc. Several of the Continental pharmacopœias include a discutient plaster composed of Melilot, resin, wax, and olive oil. The powder of the dried plant is sometimes added to plaster of cantharides to modify its effects.

CXXIX.

MERCURIALIS PERENNIS, L.
PERENNIAL OR DOG'S MERCURY.*Nat. Ord.* EUPHORBIACEÆ.*F.* MERCURIALE DES BOIS. *G.* BINGELKRAUT.

Description.—Rootstock perennial, creeping, much branched, whitish, very fibrous. Stem erect, subcylindrical, brittle, simple, generally naked below, very leafy above, thickened at the joints, slightly winged, about a foot high. Leaves in opposite pairs, on short petioles, with two small stipules at the base; they are ovate, acute, serrated, from 2 to 3 inches long, rough, deep green. Male flowers in slender, erect, lax spikes, from the axils of the upper leaves; perianth single, divided into 3 deep, ovate, concave, spreading, yellowish green segments. Stamens from 9 to 12, filaments capillary, anthers globose, 2-lobed. Female flowers in short axillary spikes, nearly twin; perianth resembles that of the sterile plants; ovary superior, roundish, compressed, bristly, with a furrow on each side, supporting two tapering, reflexed styles, slightly serrated on their inner side, with acute stigmas. Fruit a 2-lobed, 2-celled, globose, scabrous capsule; each cell containing a single globose seed, of a brownish purple colour. (Plate XXXII., fig. 4: (a) spike of female flowers; (b) entire barren flower; (c) perianth; (d) pistil; (e) section of the capsule, to show the seeds; (f) seed.)

Distribution.—Europe, Northern Africa. Common in Britain in woods and shady places. Flowers March and April.

Etymology.—The name is derived from that of the god Mercury, who is said to have discovered the virtues, whatever they may be, of this genus. Bohmer supposes that the name is a corruption of *Muliercuralis*, as being useful to women; but the Greeks called it *ερπον ποα*, Mercury's grass.

Properties and Uses.—According to Bechstein, the root affords both a blue and crimson colour, useful in dyeing and painting. The foliage is eaten by sheep and goats, but refused

by cows and horses. With regard to its poisonous properties, Sir Hans Sloane relates that a man, his wife, and three children, who mistook this plant for common English Mercury (*Chenopodium Bonus-Henricus*), experienced its deleterious effects. The woman first boiled and then fried it with bacon, for her own and family's supper. After they had been in bed about two hours, the children were seized with sickness and vomiting, which was followed by drowsiness. The man did not wake until three hours after his usual time, and during the whole of the day, while at his work, he experienced a burning heat in his face, which he endeavoured to mitigate by means of water. The woman awoke some time after her husband, and on getting up was attacked with sickness, which continued at intervals for two or three days. One of the children slept from the Thursday night on which the poison was swallowed, till Monday evening following, and then, after a few convulsive starts, expired; endeavours had been previously used to awaken her, but in vain. The other two children slept for about twenty-four hours, and awoke with vomiting and purging, which probably saved their lives.

The original authors of this work justify the introduction of this plant into the *Flora Medica*, in the following words: "Perennial Mercury has not hitherto been used medicinally; but when we look at the number of virulent plants subdued to the service of the healing art, we would not despair of some benefit being eventually derived even from this unpromising species. The only instance that we can find of its popular employment is, that in the isle of Skye an infusion of it is used to produce salivation. We have introduced it on account of its poisonous properties."

The other indigenous species of Mercury is *Mercurialis annua*. It flowers in August, and grows in waste places near towns and villages; but is much less common than the species here figured. It is a mucilaginous plant, and was formerly much employed in medicine, chiefly in clysters and emollient fomentations; when boiled, it has been eaten as greens, and if taken in considerable quantities it proves cathartic.

CXXX.

DAPHNE MEZEREUM, L. MEZEREON.

Nat. Ord. THYMELEÆ.*F.* MÉZÉREON, BOIS GENTIL. *G.* SEIDELBAST, KELLERHALS.

Description.—A shrub, 2 to 4 feet high, with a strong branched fibrous root, and a smooth olive bark. Branches few, erect, pliant, covered with a smooth, brownish, ash-coloured bark. Leaves alternate, terminal, sessile, tapering, lanceolate, glabrous, entire, deciduous, about 2 inches long, appearing before the flowers. Flowers sessile, lateral, in clusters about 3 together, on the upper part of the branches, with smooth, ovate, membranous, deciduous bracts at the base. Perianth single, inferior, resembling a corolla, light rose-colour, seldom white, consisting of a cylindrical tube, covered with whitish appressed hairs, and a 4-parted limb, separable into 2 distinct laminae; outer coloured, inner herbaceous; segments ovate, acute, papillose. Stamens 8, in 2 rows, inserted into the tube; 4 upper opposite the segments of the perianth, 4 lower alternate with them; filaments very short; anthers oblong, yellow, opening longitudinally. Ovary small, elliptical, globose, containing a solitary pendulous ovule; style very short, supporting a thin, disciform, downy stigma. Fruit a globose, bright red berry, containing, in the midst of pulp, a single globose seed, or nut. (Plate XXXIII, fig. 3: (a) entire flower; (b) perianth, opened to show the stamens and pistil; (c) pistil, natural size; (d) the same, magnified; (e) section of the same, to show the ovule; (f) section of the fruit; (g) nut.)

Distribution.—Europe (Arctic), Siberia. In copses and woods in some parts of England. Perhaps native in the south. Flowers January to April.

Etymology.—The generic name has been given in allusion to the nymph Daphne, who was fabled to have been changed into a laurel; some of the plants of this genus having the habit of laurels. The specific name is probably of eastern origin, as, according to Richardson, the Persians call this plant Mâdzaryoûn.

Properties and Uses.—The bark, especially that of the root, has been used for making paper, as well as for cordage. From the ripe fruit a fine red-lake colour has been prepared for painters. Pallas states that the Russian women use the berries to rub their cheeks with, thereby producing an inflammatory redness which they consider beautiful; and Falks observed the same practice among the Tartar women.

Every part of the plant is powerfully acrid and caustic. The flowers have a very sweet fragrance, resembling that of almond blossoms and violets; two or three of them, chewed, have merely an herbaceous flavour at first, but in a short time, the tip of the tongue is affected with an acrid burning taste, combined with a degree of numbness like that produced by aconite; this sensation soon extends to the throat and fauces, and continues for several hours, although not a particle of the substance be swallowed. Vauquelin obtained from *Daphne alpina* a crystallizable principle, which he called *daphnia*, and this principle was afterwards found by Gmelin and Baer in the Mezereon. Drs. Munro and Russel were the first to introduce the Mezereon bark into practice, as a stimulant diaphoretic, useful in venereal nodes from thickening of the periosteum. Other writers have also recommended it in similar diseases, and a decoction has been frequently administered in rheumatic, scrofulous, and cutaneous affections.

Dr. Withering records having used the root successfully in a case of difficulty of swallowing, occasioned by paralysis. He directed the patient to chew a thin slice as often as she could bear it, and in about a month she recovered the power of swallowing, although the case was of three years' standing. The berries of Mezereon, are too virulent to be used medicinally, at least in their natural state. Pallas, however, informs us, that the peasants of Siberia swallow a number of them as a common purgative. Villars observed the same in Dauphiny, and he adds, mothers do not hesitate to give them to their children in convulsive cough, in order to produce vomiting. Whatever may be the effects of such a dose on the obtuse sensibilities of these hardy mountaineers, there could be no surer poison to the natives of this country. An ointment

made of the berries is also employed in the north of Europe, against foul ulcers, chancres, and cancer.

On the Continent the bark is employed as a vesicant. For this purpose, a piece of the bark, about an inch square, is soaked in water or vinegar, and then, with an ivy or plantain leaf bound over it, applied to the skin. This requires to be renewed night and morning, at first, and subsequently once in twenty-four hours, to keep up the discharge; thus serving for what is called a perpetual blister. As a topic it is also applied to the head, to relieve deafness, headache, toothache, and some affections of the eyes—chronic ophthalmia, for instance; and has been recommended in coxalgia, chronic rheumatism, and various skin diseases. Linneus states that the Swedes apply the bark to parts bitten by venomous reptiles and rabid animals. According to Pallas, the Russians employ it to allay the pain of carious teeth; when used for this purpose, care should be taken not to swallow the saliva, on account of its acrimony. "In English medicine it is never now given, except as an ingredient of the compound decoction of sarsaparilla. An ethereal extract of the bark has been introduced (1867), as an ingredient of a powerful stimulating liniment."—*Pharmacographia*, p. 487.

The bulk of the Mezereon bark used in England is imported from Germany; nevertheless, the bark of *D. Laureola*, a plant growing in woods and hedge-sides in several parts of England, is often substituted.

Linneus compares the poisonous nature of the berries to that of *nux vomica*. He asserts that six of them will kill a wolf; and that he once saw a girl die of excessive vomiting and hemoptysis, in consequence of taking twelve of them to check an ague.

The same distinguished author, in his *Flora Lapponica*, says, "I have seen the peasantry in Scania give one of the berries to their companions by way of joke. After it has been a time ingested, it produces a burning heat in the throat, which the sufferer endeavours to extinguish by copious draughts of ale; but this is like pouring oil upon the fire: hence they call the plant *Sorbypeppar*, and *Kellerhals*, i.e. cellar-opener."

The berries are reputed to constitute the favourite food of various birds, especially of some species of finch. This may be accounted for on the supposition that they eat only the pulpy part of the fruit, which is destitute of acidity, and apparently innocuous.

CXXXI.

POLYGALA VULGARIS, L. MILKWORT.

Nat. Ord. POLYGALEÆ.

F. POLYGALA, LAITIER. *G.* KREUZBLUME.

Description.—Root perennial, somewhat ligneous, branched, creeping, fibrous. Stems ascending, sometimes procumbent, simple, cylindrical, 4 to 8 inches long. Leaves glabrous, scattered, sessile, linear-lanceolate, subacute, very entire; lowermost shorter and broader than the rest. Flowers in a terminal raceme; usually blue, sometimes purple, rose-coloured, or white, with three deciduous bracts at the base of each pedicel. Calyx of 5 sepals, 3 of them smaller, 2 of which are connected, the 2 inner petaloid, coloured, large, ovate-elliptical, marked with green lines, persistent, ultimately yellowish green, and serving as a defence to the fruit. Corolla of 3 petals, united by their claws with the filaments; lower one, or keel, bifid, beautifully crested. Stamens diadelphous, filaments connate below into a tube, then separating into 2 bundles, each with 4 anthers, which are innate, 1-celled, and opened by a pore at the summit. Ovary free, 2-celled, with a simple incurved style, and a 2-lobed stigma. Fruit a compressed, cordate, drooping capsule, slightly emarginate at the top, 2-celled, 2-valved, enveloped by the persistent calycine wings. Seed solitary, pendulous in each cell. (Plate XXXIII., fig. 1: (a) entire flower; (b) corolla; (c) lower petal or keel united with the filaments and terminated by a crest; (d) capsule; (e) the same, opened to show the seeds.)

Distribution.—Europe (Arctic), Northern Africa, Siberia,

Western Asia. On heaths, in meadows, and on the borders of woods in this country, and is known in several varieties. Flowers June to August.

Etymology.—The generic name is derived from *πολυ*, much, and *γαλα*, milk, in allusion to the property assigned to the plant of increasing the milk of animals. The *πολυγαλον* of Dioscorides is supposed to refer to this plant. Dodonæus calls it *flos ambarvalis*, "because," says Gerard, "it doth especially floure in the Crosse or Gang weeke, or Rogation weeke; of which floures the maidens which vse in the countries to walke the Procession, do make themselves garlands and nosegaies; in English wee may call it Crosse-floure, or Procession-floure, Gang-floure, Rogation-floure, and Milkwort."

Properties and Uses.—This plant has been recommended for cultivation as affording a useful food for cattle. According to the Swedish experiments, it is eaten by cows, sheep, and goats, but is refused by swine. The dried herb is said to afford a pleasant flavour when infused in the manner of tea.

Milkwort is destitute of odour; but its taste is bitter, remaining a long time in the mouth. These properties appear most developed in the bark of the root, which is of a yellowish ash colour externally, and white within; and its bitterness is accompanied with somewhat of an acrid and aromatic flavour. The properties of this plant are stated to be expectorant and tonic, and at the same time purgative. Gesner affirms that an infusion of the herb in wine for twenty-four hours, is a safe and effectual purgative, as he himself experienced. Van Swieten and Collin attributed to it great efficacy in various inflammatory diseases of the chest. Sir. J. E. Smith says, "An infusion of the herb taken in a morning fasting, promotes expectoration, and is good for a catarrhus cough. I tried it at Montpellier, by the advice of Professor Gouan, with success, and have since known it useful." It has been used in powder, infusion, or decoction.

CXXXII.

MENTHA PIPERITA, Huds. PEPPERMINT.

*Nat. Ord. LABIATE.**F. MENTHE POIVRÉE. G. PFEFFERMINZE.*

Description.—Root perennial, long, creeping, furnished with numerous small fibres. Stems about 2 feet high, numerous, ascending, branched, quadrangular, channelled, purplish, sprinkled with recurved hairs. Leaves opposite, petiolate, ovate-lanceolate, acute, rounded at the base, strongly serrated, smooth, deep green above, slightly hairy, and marked with whitish or purplish veins beneath. Flowers small, pedunculate, in axillary clustered cymes, forming an interrupted, cylindrical, obtuse, terminal spike, with two small lanceolate, acuminate, ciliated bracts at the base of the cymes, and very small subulate ones at the base of the pedicels. Calyx tubular, striated, glabrous at the base, with a 5-toothed purplish, ciliated limb, studded with pellucid glandular dots. Tube of the corolla whitish, a little longer than the calyx; limb 4-cleft, purplish; segments ovate, oblong, spreading, uppermost broader, emarginate. Stamens didynamous, concealed in the corolline tube, with short setaceous filaments, and ovate-cordate purplish anthers (often destitute of pollen). Ovary 4-parted, seated on a fleshy disk; style filiform, longer than the corolla; stigma bifid. Fruit, which is seldom perfected, the plant being increased chiefly by the root, consists of 4 small nutlets enclosed in the persistent calyx, each containing a single erect seed. (Plate XXXIII., fig. 2: (a) entire flower, magnified; (b) corolla, opened to show the stamens; (c) pistil.)

Distribution.—Europe. Introduced in the Northern United States. In damp places in some parts of Great Britain. Cultivated largely in England, France, Germany, and North America. Flowers August and September.

Cultivation.—Peppermint has been grown in the neighbourhood of Mitcham since about the year 1750; and at the end of last century about 100 acres were under cultivation; 500 acres

were so cultivated in 1850; while, in 1864, there were only 219 acres. The increased value of land, and the competition of foreign oil have caused this diminution. Peppermint is also grown in other parts of England, as near Wisbeach, Market Deeping, and Hitchin. "The fields of Peppermint at Mitcham are level, with a rich, friable soil, well manured, and naturally retentive of moisture. The ground is kept free from weeds, and in other respects is carefully tilled. The crop is cut in August, and the herb is usually allowed to dry on the ground before it is consigned to the stills. These are of large size, holding 1000 to 2000 gallons, and heated by coal. Each still is furnished with a condensing worm of the usual character, which passes out into a small iron cage secured by a padlock, in which stands the oil separator. The distillation is conducted at the lowest possible temperature. The water that comes over with the oil is not distilled with another lot of herbs, but is for the most part allowed to run away, a very little only being reserved as a perquisite of the workman. The produce is very variable."—*Pharmacographia*, p. 435.

Two varieties of Peppermint are cultivated at Mitcham, known respectively as the Black and White Mints. The former has purple, and the latter green stems. The black is cultivated to a larger extent than the white, on account of its furnishing more oil; though the oil of the white is of a superior quality, and fetches a higher price.

Peppermint is grown on a much larger scale in America than anywhere else, but the oil varies greatly in quality, and consequently in value. Mitcham oil fetches a much higher price than any other. The Peppermint has of late been introduced for cultivation in Southern India.

Etymology.—According to Ovid, the name *Mentha* is derived from Minthes, the daughter of Cocytus, who was changed into a plant of this kind by Proserpina in a fit of jealousy. The term *μνθη* frequently occurs in the writings of Hippocrates, and *ἡδυσμος* (from *ἡδύς*, sweet; *σμος*, odour) in those of Dioscorides, but to what species they refer is uncertain. Pliny designates it *Menta*.

Properties and Uses.—Dioscorides relates that Mint (*pro-*

bably Spear Mint or *Mentha viridis*) hinders the coagulation of milk, and prevents its being made into cheese; more recent authorities have stated the same fact, and Linneus mentions, that dairy-maids frequently complain that much less than the usual quantity of cheese is obtained from the milk of cows which, after harvest, are allowed to feed on the Corn Mint (*M. arvensis*), but they ascribe the effect to enchantment. Lewis observes, that milk in which the leaves of Mint are macerated, curdles much less quickly than pure milk.

The essential oil of this plant, for the sake of its aromatic fragrance, is used by perfumers, and is employed in various ways by confectioners, especially to form lozenges.

Peppermint has a strong, spirituous, camphor-like odour, and a pungent, aromatic, bitterish taste, producing at first an impression of warmth in the mouth, which is immediately followed by a diffusive sensation of coldness. Some very apocryphal qualities were attributed by the ancients to Mint. Observing that the plant hindered the coagulation of milk, by a false induction they concluded that it must necessarily attenuate the humours, and impart an undue fluidity to the blood; hence it was esteemed antiaphrodisiac, capable of producing sterility, and efficacious in dissipating coagulated milk in the female breast. In more recent times it has been recommended in asthma, hysteria, flatulency, etc. At the present time Peppermint water is considered stimulant, and is often used as an adjunct with other medicines. The essential oil is largely used for flavouring sweetmeats, confectionery, and cordials. It is also a common domestic remedy for flatulence, faintness, nausea, etc., and it has likewise been used in the composition of liniments for application to parts affected with rheumatism.

Spear Mint (*Mentha viridis*) has very similar properties to the foregoing, but it is less pungent, and to some patients more grateful. It invigorates the stomach, relieves pain and colic arising from spasm, and allays sickness and vomiting proceeding from the same cause.

CXXXIII.

VISCUM ALBUM, L. MISTLETOE.

Nat. Ord. LORANTHACEÆ.*F.* GUI, GUI DE CHÊNE. *G.* MISTEL.

Description.—A parasitical plant, with a root firmly attached to the wood of the tree on which it grows. Stem firm, succulent, bright yellowish green, 1 to 2 feet high, divided into numerous dichotomous branches. Leaves opposite, persistent, obovate-lanceolate, obtuse, coriaceous, thick, with parallel ribs, quite entire, light green. Flowers diceious, in sessile axillary heads, of about 5 flowers. Male flowers have an obsolete calyx, a corolla of 4 ovate petals united at the base, each bearing a single compressed sessile anther with many cells opening by pores: female flowers very small; calyx forming an obscure margin; corolla of 4 ovate equal deciduous petals united at the base; ovary inferior, crowned by the border of the calyx; stigma sessile, obtuse. Fruit a smooth, whitish, succulent, globose berry, containing a solitary, cordate, compressed seed. Seed has sometimes 2, occasionally 3 embryos. (Plate XXXIV., fig. 2: (a) head of male flowers; (b) head of female flowers; (c) female flower, detached; (d) seed, denuded of its integument.)

Distribution.—Europe, Northern Asia. Parasitic chiefly on apple trees, hence it is most frequent in Herefordshire, Worcestershire, and the south of England. It is also found upon the hawthorn, service, pear tree, lime tree, walnut, willow, and rarely upon the oak. Flowers March to May, and berries ripen in October.

Etymology and History.—Viscum is derived from the Greek *ἔξος*, and that from the Celtic *gwid*, the shrub, *par excellence*, so called because of the superstitious veneration with which it was regarded by the ancients. Prior says Mistletoe, or in Anglo-Saxon, Mistiltan, is derived from *mistl*, different, and *tan*, twig, being so unlike the tree it grows upon.

The Mistletoe was an object of the most superstitious

ard among our Saxon ancestors. When growing on the it was considered the peculiar gift of the gods, and was hered by the Druidical priest himself, clothed in a white e, and armed with a golden sickle. This ceremony was formed annually, and was accompanied with the sacrifice of white bulls and a repast under the oak; hymns were then g in honour of the divinity, and prayers were offered for essing on their solemnities. At the commencement of the r year, the plant was distributed among the people as a ed relic, and was deemed a panacea against every disease, a remedy for poisons.

The Mistletoe becomes attached to the nourishing plant sending its roots into the new wood just beneath the bark, are the descending sap is most abundant and of richer lity. The roots are projected inwards in the direction of the ullary rays, so that the cellular systems of the two plants e in contact though no direct communication between the sels takes place. The woody systems of the two plants grow increase together; the parasite, however, by causing an ue flow of sap, or by preventing a proper flow in the stock, ntually causes its death and consequently its own destruc- t. An excellent paper on the growth of the Mistletoe, by Harley, will be found in the *Transactions of the Linnean iety*, vol. xxiv., p. 175. Aristotle, and others of the ancients, gined that the seed would not grow unless it passed ough the intestines of a bird.

Properties and Uses.—The berries were esteemed poi- ous: Shakspeare probably alludes to this opinion when he s it *baleful Misseltoe*:—

“A barren and detested vale you see it is;
The trees, though summer, yet forlorn and lean,
O’ercome with moss and baleful Misseltoe.”

the berries are greedily devoured in the winter months thrushes, field-fares, wood-pigeons, and other birds. Sheep fond of the foliage, and it is even said to preserve them n the rot. Moreover, Bock states that poor persons have, imes of scarcity, collected and dried the branches and leaves

of Mistletoe, then pulverized and mixed them with rye-flour, and thus obtained a kind of bread which was by no means unwholesome. The leaves and tops, when recently gathered, are nearly inodorous, with a subviscid, somewhat austere taste when masticated. Hippocrates, Dioscorides and Galen highly extol the virtues of Mistletoe, or at least the glue obtained from it, as an external remedy; but neither of them mentions its internal employment except Hippocrates, who recommends it in diseases of the spleen. At the commencement of the 14th century we find the Mistletoe of the oak spoken of in Gordon's *Lilium Medicinæ* as a remedy for epilepsy. At this period it was not only taken as a medicine, but hung round the neck as an amulet against poison, witchcraft, and possession of the devil. Superior efficacy was for many ages attributed to it when obtained from the oak—an opinion doubtless originating in the high value attached to it as a sacred plant in the days of Druidical superstition. Matthioli and Paracelsus also laud its effects in epilepsy, and Kölderer, Cartheuser, Colbatch, Löseke, Van Swieten, etc., state that they found it beneficial, not only in this redoubtable disease, but in other convulsive affections. Other writers record its uses in hysteria and other nervous affections, also in dysentery, and externally as discutient and emollient.

CXXXIV.

ARTEMISIA VULGARIS, L. MUGWORT.

*Nat. Ord. COMPOSITEÆ.**F. ARMOISE, HERBE DE LA SAINTE JEAN. G. BEIFUSZ.*

Description.—Root about the thickness of the finger, perennial, creeping, ligneous, furnished with numerous strong fibres. Stem nearly herbaceous, erect, cylindrical, channelled, branched, reddish, sometimes covered with whitish pubescence, 3 or more feet high. Leaves alternate, pinnatifid, incised; deep green above, white and cottony beneath; upper much less divided.

with nearly linear segments. Flowers in axillary racemose spikes; each flower ovate, sessile, composed of several small pale purplish florets seated on a naked receptacle. Involucre of a few narrow, imbricated, woolly scales. Florets of the circumference female, subulate, bifid at the limb, about 5 in number; those of the centre, or disk, hermaphrodite, with a filiform tube and 5-cleft limb; segments acute and revolute. Stamens 5; filaments setaceous; anthers cylindrical, united into a tube. Ovary ovate, obtuse, glabrous, surmounted with a setaceous style passing through the tube of the anthers (in the perfect florets), tipped with a bifid revolute stigma. Fruit an obovate pericarp, or achene, destitute of pappus. (Plate XXXIII., fig. 4: (a) flowerhead composed of several small florets; (b) female floret; (c) hermaphrodite floret.)

Distribution.—Europe (Arctic), Northern Africa, Siberia, Western Asia to the Himalaya. Common in waste places, hedgerows, etc., in Britain. Flowers July to September.

Etymology.—The name *Artemisia* is said by Pliny to be derived from *Artemisia*, wife of Mausolus, King of Caria, who first discovered the virtues of this plant, or from *Artemis*, the Diana of the Greeks. Parkinson thinks that it ought to be called Maidenwort; and this would certainly be in accordance with its original designation, *παρθένος*. In Germany, Holland, and some other countries, it has received the name of St. John's plant, because on the eve of St. John's day it is accustomed to be gathered with certain superstitious observances, and the possessor of it is thought to be secure from apparitions, diseases, and misfortunes. The "coals" found at the root of this plant on St. John's day, either taken internally or worn round the neck as an amulet, have been regarded by the credulous as very efficacious against epilepsy. These coals are portions of old and dead roots.

Properties and Uses.—In some countries Mugwort is used for culinary purposes. According to Swedish experiments, it is disliked by animals in general, but Dr. Anderson remarks that sheep devour it with great avidity, especially the roots. The flesh of poultry, particularly of geese, is said to be rendered more tender and savoury by being stuffed with this herb.

The odour of the recent plant, especially of the flowering tops, when rubbed, is fragrant and aromatic; and the taste herbaceous, slightly bitter, sweetish, and tenacious. This plant was very frequently employed by the ancients, particularly in affections of the uterus. By Hippocrates it is recommended for expelling the secundines, etc.; and by Dioscorides for accelerating parturition. Galen commends fomentations, and Pliny the vapour of the plant in decoction for similar purposes. A decoction is used by poor persons as a remedy for intermittent fevers. The dried leaves, bruised in a mortar, and rubbed between the hands until the downy part is separated from the woody fibre, and rolled into little cones, is a good substitute for the Chinese moxa, and is much used in Japan and Cochin-China, according to Kœmpfer, in affections of the joints. The part is first moistened and then a cone of the moxa is applied, which is set on fire at the apex and gradually burns down to the skin, producing a dark-coloured spot; by repeating the process an eschar is formed, and this on separation leaves an ulcer, which may be kept open or healed as circumstances may require. Various other plants have been employed for this purpose. An infusion of the flowering tops is by some considered tonic, and externally the plant has been used in fomentations.

CXXXV.

MORUS NIGRA, L. MULBERRY-TREE.

Nat. Ord. MORACEÆ.*F.* MURIER. *G.* MAULBEERBAUM.

Description.—A much-branched tree, seldom more than 30 feet high, covered with a rough brownish grey bark. Leaves numerous, on short footstalks, cordate, somewhat ovate, serrated, veined, 3 to 4 inches long, nearly as broad, deep green, and rough with minute tubercles above, paler and villous beneath. Flowers in ovate, drooping catkins, sterile

nger and more slender, each male flower composed of 4 sepals, enclosing 4 filaments with anthers; female flowers of 4 sepals, permanent, ultimately becoming fleshy. Ovary roundish, with a short style linear-subulate, hirsute, erect stigmas. Fruit (called a *drupe*) consists of several *acini*, or small dark purple berries, by the development of the calycine leaves over the ovaries, closely imbricated on a fleshy cylindrical pedicel; each of which is obovate, compressed, obtuse, with the remains of the style, and contains, in the centre of its succulent lobes, a single triangular-ovate, compressed, one-seeded nut. (Plate XXXIV., fig. 3: (a) male flower previous to the expansion of the anthers; (b) male floret, (c) female floret.)

Distribution.—Northern Asia Minor, Armenia, Southern France. Introduced into Italy, and thence into England, it has been cultivated since the middle of the sixteenth century, and is now quite common. Flowers in June, and fruit ripens in September.

Etymology.—The generic name, *Morus*, is derived from the Greek *moros*, and that from the Celtic *mor*, signifying black. The ancients fabled that the fruit of the Mulberry, which was white, changed to a deep red on absorbing the blood of Pyramus and Thisbe, self-slain beneath its shade.

Properties and Uses.—The wood of the Mulberry is of slow growth, but close-grained, tolerably hard, very durable under ground, and may be applied to a variety of uses in turnery and carpentry. The inner bark is tough and fibrous, and has been used for making baskets, mats, cordage, ropes, and brown paper. The fruit yields, by fermentation, a pleasant wine, which is much used, particularly in Devonshire, mixed with cider, and what is called Mulberry-cider, which possesses a very pleasant taste, and a deep red colour, similar to that of port wine. The leaves of this tree, however, are the most important, furnishing food for silk-worms. Hence it is extensively cultivated in the East, as well as in Italy and the south of France.

Attempts have been made in England to naturalize the silk-worm, but without success. James I. endeavoured

to establish a silk manufactory here, but the project after a time was given up. Some of the fine specimens of this tree in the old gardens near London, are said to have been planted at that period. The bark has rather a heavy odour, and an austere, bitter, subsaline taste. The fruit is inodorous, has a pleasant acidulous taste, and contains a large quantity of deep crimson red juice. All the old authors agree in attributing a laxative property to the ripe fruit of the Mulberry. The syrup has been used as a detergent, and applied to thrush in the mouth, or added to gargles for sore throats. The bark of the root is of an acrid bitter taste, and cathartic, and it has been commended as a cure for intestinal worms.

CXXXVI.

VERBASCUM THAPSUS, L. GREAT MULLEIN.

Nat. Ord. SCROPHULARINEÆ.

F. BOUILLON BLANC, HERBE DE SAINT FIACRE. G. WOLLERAUT.

Description.—Root biennial, fusiform, whitish, somewhat ligneous, sending off occasional rootlets. Stem erect, simple, firm, straight, cylindrical, leafy, angular, winged, covered with a thick greyish pubescence, 3 to 5 feet high. Radical leaves very large, spreading, on short petioles; cauline ones decurrent, sessile, gradually decreasing in size; the whole alternate, ovate or oblong, attenuate at the base, crenulate at the margin, wrinkled above, very thick, covered on both sides with dense, whitish, branched, intricate, woolly hairs. Flowers form a terminal, long, cylindrical, dense, spike-like raceme. Calyx with 5 deep, ovate, acute divisions, with lanceolate bracts at the base. Corolla large, rotate, or somewhat funnel-shaped, golden yellow, rarely white, consisting of a short thick tube and a 5-parted limb. Segments obovate, obtuse, somewhat unequal. Stamens 5, inserted into the tube, shorter than the limb, the 3 upper filaments shorter, nearly erect, hairy, the 2 lower longer, glabrous; anthers oblong, 2-lobed, orange coloured.

Ovary roundish, tomentose, obtuse; style filiform; stigma clavate. Fruit an ovoid capsule, surrounded by the calyx, with 2 cells and 2 valves opening at the summit and containing numerous small angular seeds. (Plate XXXIV., fig. 1: (a) calyx and pistil; (b) corolla, opened; (c) pistil; (d) capsule; (e) transverse section of the capsule; (f) seed, magnified.)

Distribution.—Europe, Siberia, Western Asia, Himalaya. Introduced in North America. On banks and waste dry places in Britain. Flowers June to August.

Etymology.—This plant is most probably the *φλομος* of Dioscorides, so called from *φλοξ*, *φλογος*, a flame, because the stems have been used for torches; hence, perhaps, one of the English synonyms, High Taper. *Verbascum* is an alteration of *barbascum*, from *barba*, a beard, on account of the woolly hairs with which the plant is covered. The English term, Mullein, seems to be derived from the French *Mollene*, and that from *moelleux*, soft, in allusion to the texture of the leaves. It has also been called provincially Ladies' Foxglove, Hare's-beard, and Cow's Lungwort.

Properties and Uses.—Linneus states that this plant is never eaten by cattle. It is given medicinally in the pulmonary diseases of cows; hence the name Cow's Lungwort. Bechstein affirms that the roots reduced to powder and mixed with malt-meal speedily fatten poultry. The whole plant, tied up in bundles, is used in German granaries to prevent the depredations of mice, for which purpose it is said to be very effectual. The stalks covered with pitch have been used as flambeaux. The flowers afford a delicate, though not durable, yellow to wool and cotton; an infusion of them was used by the Roman ladies to tinge their tresses of the golden hue once so much admired in Italy. Boccone mentions that the seeds, thrown into a fish-pond, stupefy the fish, so that they may be taken with the hand. The down which covers the leaves and stem may be used as tinder or moxa.

The physical qualities of Mullein are rather feeble. The leaves have a weak, subnarcotic, rather unpleasant odour, and an herbaceous, bitterish taste. The recent flowers have a similar odour, but when dried they are more pleasant, and

their odour is compared by Bergius to that of the Florentine Iris; their taste is agreeable, sweetish, and mucilaginous. The leaves and flowers of the Mullein are anodyne and emollient, and considerable praise has been granted to them both, as an internal as well as an external remedial agent. The chief uses to which Mullein has been put has been for pulmonary affections, and in diarrhœa. The leaves are not unfrequently used by the peasantry, boiled with lard, and made into an ointment for dressing wounds. An infusion of the flowers has been used in whooping and convulsive coughs in children, as well as in colic, spasmodic diseases, hemorrhages, internal ulcers, etc. A conserve of the flowers, or a water distilled from them, is used on the Continent as an application to ring-worm and other cutaneous diseases, to allay the irritation. Externally, fomentations or poultices, made from the leaves or flowers beaten up with linseed meal, have been considered excellent applications to burns, scalds, boils, etc.

CXXXVII.

SINAPIS NIGRA, L. BLACK MUSTARD.

Nat. Ord. CRUCIFERÆ.

F. MOUTARDE NOIR. *G.* SCHWARZER SENF.

Description.—Root annual, small, whitish, descending, with numerous capillary fibres. Stem erect, cylindrical, somewhat hairy, branched, 3 to 4 feet high. Leaves alternate, petiolate, dark green; lower ones lyrate, with obtuse, unequally toothed lobes; uppermost linear-lanceolate, smooth, entire, and hanging down. Flowers yellow, small, in a long terminal raceme, on short peduncles. Calyx of 4 oblong, straight, spreading sepals. Corolla cruciform; petals obovate, rounded, spreading, with short erect claws. Stamens tetradynamous, with simple erect filaments, glandular at the base, and supporting oblong anthers. Ovary cylindrical, with a small short style and capitate stigma. Siliques small, nearly smooth, obtusely quadrangular, appressed to

the stem, and terminated by a very short beak, or rather by the persistent style and stigma. Seeds, nearly globose, numerous, shining, dark brown, arranged in a single series. (Plate XXXIV., fig. 4: (a) entire flower, slightly magnified; (b) calyx, stamens, and pistil; (c) pistil; (d) silique, or pod, opened to show the disposition of the seeds.)

Distribution.—Europe, Northern Africa, Western Asia to the Himalaya. Introduced in the United States. In hedges and waste places in England; rare in Scotland. Flowers June to September.

Etymology.—The term *Sinapis* is derived from the Greek *σινάπι* (*παρα του σινεσθαι τους ωπας*), from its pungency affecting the eyes. Théis states that the origin of the word may be traced to the Celtic *nap*, a general name for plants of the rape kind. The plant is now generally placed in the genus *Brassica*. Mustard is said to be an abbreviation of *mustum ardens*, hot must; the sweet must of new wine being formerly an ingredient in preparing mustard for dietetic purposes.

Cultivation.—This plant was formerly cultivated to a great extent in Durham. At the present time it is grown in England only on the richest alluvial soils, and chiefly in Lincolnshire and Yorkshire. It is sown in March and April, and affords a crop of ripe seed in July and August, when it is stacked and threshed like other grain. In common with other cruciferous plants it is exhausting to the soil. The well-known salad called Mustard is commonly raised from *S. alba*, but it may also be procured from *S. nigra*; and the tender leaves of the latter are sometimes used as greens early in the spring. White Mustard is grown largely as an agricultural crop in Essex and Cambridgeshire.

Properties and Uses.—The seeds in their entire state are nearly inodorous, but when bruised they have a pungent, penetrating odour, and a warm, bitterish, acrimonious taste. Mustard is universally allowed to be stimulant, diuretic, emetic, and rubefacient. It is found to promote appetite, assist digestion, attenuate juices, and by stimulating the fibres, to prove a general remedy in paralytic, chronic rheumatic, and arthritic affections.

Flour of Mustard, both of the black and white kinds, is extensively used for poultices as a powerful external stimulant, and also as a condiment. The essential oil, combined with spirit of wine, is sometimes prescribed as a liniment.

CXXXVIII.

URTICA DIOICA, L. COMMON NETTLE.

Nat. Ord. URTICEÆ.

F. ORTIE. G. NESSEL.

Description.—Root perennial, creeping, ligneous, fibrous. Stems erect, somewhat branched, quadrangular, hispid with rigid articulated pungent hairs, 2 to 4 feet high. Leaves opposite, petiolate, ovate-acuminate, cordate at the base, deeply serrated, rugose, dull dark green above, paler beneath, hispid on both sides, with 2 small, opposite, concave, reflected stipules at the base of the petiole. Flowers in long, pendent, somewhat branched clusters, frequently 2 from the axil of each leaf, male and female on separate plants (diœcious), seldom monoœcious. Male flowers have a perianth of 4 ovate, obtuse, concave, spreading segments, and 4 setaceous filaments tipped with ovate-gibbous, 2-celled anthers. Female flowers consist of a perianth of 2 ovate, obtuse, pilose leaves, and a superior, ovate, glabrous ovary, terminated by a sessile, downy, spreading stigma. Fruit an ovate, compressed, polished nut, containing a single seed, and enveloped by the persistent perianth. (Plate XXXV., fig. 1: (a) male flower of the natural size; (b) female flower; (c) male flower, magnified; (d) anther, magnified; (e) female flower, magnified; (f) ripe fruit; (g) the same divested of the calyx.)

Distribution.—Northern temperate regions (Arctic), South Africa, Andes, Australia. In this country the Nettle is well known as one of the most common plants in waste places, and under walls and hedge-banks. Flowers June to September.

Etymology.—The generic name is derived from *uro*, to

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burn, in allusion to its stinging property. The common name has a similar meaning, being merely an alteration of needle, in Anglo-Saxon *needl*, obviously referring to the needle-like stings of the plant.

Properties and Uses.—The tops of the common Nettle are boiled and eaten in many places as greens: Andrew Fairservice, in Scott's "Rob Roy," is made to say:—"Nae doubt I should understand my ain trade of horticulture, seeing I was bred in the parish of Dreep-daily near Glasco, where they raise lang kail under glass, and force the early *nettles* for their spring kail." They are said to be not only nutritive, but slightly aperient; they are boiled along with oatmeal in the Hebrides. In the Western Islands of Scotland a rennet is prepared, by adding a quart of salt to three pints of a strong decoction of Nettles; a table-spoonful of which is said to be sufficient to coagulate a quart of milk. The fresh herb, boiled and reduced to a paste, is used for feeding poultry, and in some places young turkeys are fed almost exclusively upon it. When recent, it is refused by horses, cows, goats, sheep, and swine, but is eagerly devoured by the ass. When dry it affords an excellent forage for cattle, and is reputed to increase the milk of cows, and to be a preservative against the contagious distemper affecting horned cattle. Murray, after Hagstrom, states that the Nettle, planted in the neighbourhood of bee-hives, drives away frogs, which are said to be inimical to the swarming of those insects; and that a frog plunged into a vessel containing a decoction of this plant is soon destroyed. The filamentous part of the stems, dressed in a similar manner to flax and hemp, may be made into a kind of coarse cloth or canvas. The Kamschatdales, and other inhabitants of the North, have employed the stalks for a long period in the manufacture of cordage, cloth, and lines which they use for fishing. Paper has also been made from the rind, as well as from the woody substance of the stalk. The seeds on expression yield an oil, which may be used for burning in lamps. The roots boiled with alum will dye yarn of a yellow colour.

The recent plant is almost destitute of odour, and has a weak, bitterish, herbaceous taste. It is reputed to be slightly

astringent and styptic, and the expressed juice slightly inspissated, has a strong subsaline taste.

The Nettle has long been celebrated in different diseases, either to excite the skin locally, or to affect the nervous system generally. Internally, in infusion or decoction, the herb has been employed in consumption, spitting of blood, and uterine hemorrhage. The root and seeds were esteemed by Ray in pulmonary diseases; and a decoction of them in milk is a common remedy in Germany for intestinal worms. Externally, *urtication*, or flogging with Nettles, has been beneficially used in chronic rheumatism, and loss of muscular power or sensibility. The bruised herb or juice, applied to the nostrils, is said to suspend bleeding from the nose; and by the peasants of our own country, the leaves are not infrequently placed on the roof of the mouth with the same intent. Lastly, made into a poultice, they gently stimulate gangrenous and malignant ulcers, and infused in water, make an excellent gargle for relaxation of the palate and uvula.

CXXXIX.

ATROPA BELLADONNA, L.

DEADLY NIGHTSHADE, OR DWALE.

Nat. Ord. SOLANÆÆ.

F. BELLADONE. *G.* TOLLKIRSCHÉ.

Description.—Root perennial, long, thick, creeping, branched, fleshy, yellowish. Stems herbaceous, cylindrical, erect, pubescent, dichotomously branched, often tinged with purple, 3 or more feet high. Leaves shortly petiolate, in opposite pairs of unequal size, some very large, ovate, somewhat elliptical, acute, smooth and soft, veiny, lurid green. Flowers solitary, axillary, drooping, supported on a round viscid peduncle about the same length as the flower. Calyx deeply divided into 5 ovate, acuminate, persistent, viscous segments. Corolla campanulate, pubescent, lurid glossy purple externally; tube short, whitish,

somewhat ventricose; limb divided into 5 equal, ovate, acuminate, somewhat recurved segments. Stamens 5, about as long as the corolla, filaments inserted into the tube, incurved at the summit, pubescent below; anthers roundish, ovate, 2-lobed. Ovary superior, spheroidal, with a groove on each side, and a nectariferous gland at the base, supporting a simple declined style, at first shorter than, ultimately as long as the corolla, terminated by a capitate greenish stigma. Fruit a black glossy berry, about the size of a small cherry, subtended by the persistent calyx, 2-celled, containing several reniform seeds attached to a placenta, and surrounded by pulp. (Plate XXXV., fig. 2: (a) corolla, opened to show the stamens; (b) pistil; (c) transverse section of the berry; (d) seed, magnified.)

Distribution.—Europe, from Denmark southwards, Northern Africa. Introduced in North America. In this country it is often met with near the ruins of ancient buildings. From the fact of its being found abundantly near the ruins of Furness Abbey, this particular locality has been called the Vale of Nightshade. In some parts of England and France, as well as in North America, the plant is cultivated for medicinal use. Flowers June to August: ripens its berries in September.

Etymology.—The name of the genus has been very appositely bestowed in honour of *Atropos*, one of the Fates, whose office it is to cut the thread of human life. The specific name is borrowed from its Italian appellation, *Belladonna*, signifying beautiful lady, from the use made of it by the ladies as a cosmetic. The old names *Lethale*, *Maniacum*, and *Furiosum* allude to the madness and delirium occasioned by the plant when it is taken in an over-dose. Dioscorides calls it *στροχυρὸς μανικός*, and some writers consider it the *Mandragora* of Theophrastus. Its English name, *Dwale*, is derived from the old provincial word *dwaal* (*dwaelen*, Dutch), to wander, to be delirious.

Properties and Uses.—The whole plant has a feeble odour of a nauseous kind. The roots and leaves have an insipid taste at first, which soon becomes nauseous and somewhat acrid, and is not lost in the dried plant. The taste of the

recent berries is insipid, sweetish, and subastringent. The active principle is known as *atropine*.

Like all other powerful remedial agents, *Belladonna* has been celebrated for a host of diseases. The whole plant is possessed of the same virtues, apparently most powerful in the berries and the root, but more manageable in the leaves. These were first externally employed to discuss scirrhus and cancerous tumours and ulcers, for which purposes a decoction or poultice made of them was applied; or when ulceration had taken place, the dried powder was sprinkled on the sore. Their supposed good effects in this way led to their internal use for the same diseases. From the influence which *Belladonna* exerts over the nervous system, it has been proclaimed a powerful curative means in hypochondriasis, melancholy, mania, and hydrophobia; but notwithstanding the cases mentioned by Mayerne, Richter, Münch, and others, later experience is not satisfactorily affirmative of its powers either in mania or hydrophobia. Hahnemann and Koreff assert, that persons while under the influence of this medicine are safe from the contagion of scarlet fever, a fact which Randhahn has confirmed by experiments on one hundred and sixty children. For these and other complaints the leaves, root, and berries, in their various preparations, have been employed. At the present time, *Belladonna* root is used chiefly for the preparation of *atropine*, which is a well-known agent for dilating the pupil of the eye. A liniment is also prepared from the root, used in neuralgia. The introduction of the root of *Belladonna* into British medicine as the basis of an anodyne liniment, dates only from about the year 1860.

The fresh leaves are used for making extract of *Belladonna*, and the dried leaves for preparing a tincture. At one time a bright green colour was prepared from the berries, for use by miniature painters.

With regard to the poisonous properties of this plant, though sheep, rabbits, goats, and swine eat the foliage with impunity, both it and the berries are excessively poisonous to the human subject. These peculiar poisonous qualities have been known from an early period, as appears from the epithets

applied to it by the ancients. Its power of causing mania, or a species of intoxication, is supposed to be alluded to by Shakspeare in the speech of Banquo to Macbeth—

“Or have we eaten of the insane root,
That takes the reason prisoner?”

There can be no doubt that it was the plant resorted to by the Scotch under Macbeth, when, under pretence of a truce, they sent bread and a mixture of wine and ale impregnated with poison to the troops of Sweno, who, after partaking of the treacherous gift, fell into a lethargic sleep, and were easily massacred by their enemies. At a much earlier period, its potent oblivious effects appear to have been experienced by the Roman soldiers during their retreat, under the command of Anthony, from the Parthians; thus described by Plutarch in his account of the Parthian war: “They who sought for herbs, obtained few that they had been accustomed to eat, and in tasting unknown herbs, they found one which occasioned madness and death. He that had eaten of it lost entirely his memory and his senses, and employed himself busily in turning about all the stones he could find, as if intent upon some very important pursuit. The camp was full of unhappy men *bending to the ground*, and digging up and removing stones, till at last they were carried off by a bilious vomiting, when wine, the only antidote, was not to be procured.”

M. Gaultier de Claubry relates the cases of 150 soldiers, who were poisoned by the berries of Belladonna, which they gathered at Pirna, near Dresden. The peculiarity in these instances was the complete loss of voice: instead of speaking, they could only utter confused noises with a painful effort. The other symptoms were much resembling those before mentioned, with continual motion of the hands and fingers, and frequent bending forward of the trunk.

CXL.

QUERCUS ROBUR, L. COMMON OAK.

Nat. Ord. CUPULIFERÆ.*F.* CHÊNE, ROUVRE. *G.* EICHE.

Description.—A majestic, lofty tree, frequently 90 to 100 feet high, trunk very thick, and when standing singly, sending off immense horizontal spreading branches, covered with a rough, dark brown bark. Leaves alternate, sessile or on very short petioles, oblong-obovate, smooth, the margin sinuated, with irregular, obtuse, rounded lobes; upper surface deep shining green, lower paler, slightly glaucous, marked with lateral and oblique nerves. Flowers monœcious, in axillary lax catkins. Male flowers in a long drooping, cylindrical, peduncled catkin, with a membranous, subcampanulate, generally 5-cleft perianth (calyx). Stamens 10, with short filaments and globose 2-lobed anthers. Female flowers, on single axillary peduncles, few, small, usually sessile and scattered; each flower presents an involucre of several little scales, united into a cup, surmounting which is a perianth of 6 downy acute segments, closely investing the ovary, which is ovate, crowned with a short conical style, supporting 3 or 4 obtuse reflexed stigmas. Fruit, called an acorn, is seated in a coriaceous, thick, hemispherical cup or cupula—the enlarged and indurated involucre. It is ovoid, smooth, shining, obtuse at the base, with a prominent hilum, and contains a single seed or kernel. (Plate XXXVII, fig. 1: (a) catkins of male flowers; (b) female flowers; (c) male flower, magnified; (d) female flower, magnified; (e) longitudinal section of the nut or acorn.)

Distribution.—Europe, Western Asia, from the Atlas, Taurus, and Syria, almost to the arctic circle. It is one of the chief forest trees of Britain. Flowers April and May, ripening its fruit in October.

Etymology and History.—The generic name is derived from the Celtic *quer*, beautiful, and *cuez*, a tree. The specific

name is also derived from the Celtic term for the Oak, *rove*; whence the Latin *robur*, strength. The Greek *δρυς*, is probably derived from *derw*, another Celtic word for the tree, and hence the terms Druids and Dryades.

The praises of the Oak have been celebrated by poets, philosophers, novelists, agriculturalists, political economists, and by all who can appreciate what is beautiful or useful in nature. It is one of the most enduring of trees, and the very emblem of strength and perpetuity, and by general consent the forest-king. Indeed its majesty rendered it an object of veneration in former ages. The Oaks of the forest of Dodona, near which was the celebrated temple of Jupiter, were even consulted as oracles; the Druids performed their mystic rites under the shade of these sacred trees, and they have often formed temples for idolatrous worship. Among the Greeks and Romans, a chaplet of Oak was one of the highest honours that could be conferred on a citizen.

An Oak, figured in Evelyn's *Sylva*, was felled at Withy Park, Shropshire, in 1697, which was nine feet in diameter, contained twenty-eight tons of timber in the body alone, and the spread of the top from bough to bough, was one hundred and forty-four feet. The Greendale Oak, in Welbeck Park, measures thirty-five feet in circumference, near the base, and is supposed to be full seven hundred years old. Dr. Plot mentions an Oak at Norbury, the girth of which was forty-five feet; and another at Keicot, under the shade of which 3474 men could stand.

The Fairlop Oak in Hainault Forest, Essex, was an immense tree, with branches overspreading an area of three hundred feet. It is now destroyed. One of the largest Oaks of which there is any record, was in Dorsetshire. Its circumference was sixty-eight feet, and the cavity which was sixteen feet long, and twenty feet high, was about the time of the Commonwealth used by an old man for the entertainment of travellers. In Ampthill Park, Beds., there is a fine specimen measuring forty feet in circumference at the base, and is supposed to be one thousand years old. Dryden assigns nine centuries to the Oak:—

"The monarch oak, the patriarch of the trees,
Shoots rising up and spreads by slow degrees;
Three centuries he grows, and three he stays
Supreme in state, and in three more decays."

"In Britain, although it is unknown that acorns ever formed the common food of the inhabitants, it was for them alone that the Oak was prized, as furnishing the chief support of the large herds of swine on which our forefathers fed. Woods of old were valued according to the number of hogs they could fatten, and so rigidly were the forest lands surveyed, that in ancient records, such as the Domesday Book, woods are mentioned 'of a single hog.' The right of feeding swine in the woods, called *panage*, formed, some centuries ago, one of the most valuable kinds of property. With this right monasteries were endowed, and it often constituted the dowry of the daughters of the Saxon kings. Indeed, the encroachments of the Norman princes on this common right, in their passion for preserving forests for the chase, was one of the most grievous wrongs of which the oppressed people in those times complained, and relief from which was wrung from John, among other privileges, on the plains of Runnymede."

Properties and Uses.—The wood was at one time very extensively used for ship-building. It is very hard, tough, and not liable to splinter, and is valued for the manufacture of staves, laths, and spokes of wheels, also for mills, presses, wine-casks, and for all purposes where strength, solidity and durability are required. Oak saw-dust was formerly used as one of the principal materials in dyeing fustian, affording all the various shades of brown and drab. The bark is well known for its use in tanning leather; and when it has fulfilled the purposes of the tanner, it is burned as fuel, and is employed by the gardener to produce heat by fermentation. The leaves are eaten by horses, cows, goats, and sheep, and though inferior to the bark, have been used in tanning. It has been asserted that a peck of Oak leaves is equal to a pound of bark. The acorns form a common article of food for swine and deer. We have already adverted to the opinion that our ancestors derived their sustenance from the fruit of this tree; it might have been resorted to in times of scarcity, but it is too bitter and austere

bark is collected in the spring from the younger stems or branches. It is mostly in thin smooth pieces, varying in length, of a shining silvery grey colour with brown patches. It has a tough fibrous fracture, and when moistened has a smell of tan.

The fruit of the Oak, commonly called the acorn, held a conspicuous place in ancient therapeutics. Dioscorides attributed to it numberless virtues, and employed it both internally and externally, for promoting the secretion of urine, suspending headache, dissipating wind, and for cleansing unhealthy ulcers; but acorns have long lost their medicinal reputation, notwithstanding the praises of Dioscorides and other ancient authors.

CXLI.

ALLIUM CEPA, L. ONION.

Nat. Ord. LILIACEÆ.*F.* OGNON, CIBOULE. *G.* ZWIEBEL.

Description.—Root consists of several tufted, simple, whitish fibres, attached to the base of a fleshy plate or disk, upon which is situated the bulb, consisting of numerous, more or less thick fleshy tunics, one within another, forming an orbicular or ovate depressed body. Leaves glabrous, cylindrical, fistulous, acuminate, all proceeding from the root. Flowers terminal, umbellate, in a rounded or oval head, supported on a round fistulous scape, from 2 to 3 feet high, ventricose or inflated towards its lower part. Perianth resembles a corolla, consisting of 6 spreading, ovate, acute petals, whitish or reddish, with a green costa, the 3 inner rather larger. Stamens 6, with whitish filaments, united at the base; the 3 opposite to the outer petals subulate, erect; the 3 opposite to the inner petals subulate and spreading above, broadly ovate at the base, often with a short tooth on each side, anthers ovate, opening inwards. Ovary roundish, slightly depressed, obsoletely trigo-

to be used as food. The French, during the great dearth which prevailed in 1709, were driven to the extremity of eating it as bread, and experienced very injurious effects, such as obstinate constipation and destructive cholera. In Norway and Smoland, however, the acorns, after being deprived in some measure of their astringency and bitterness, are mixed with half their quantity of wheaten flour, and made into wholesome bread. Their way of preparing is :—after selecting the ripe fruit only, they boil it in water, that the integuments or skin may be separated, and then dry the kernel and reduce it to powder ; it then undergoes protracted fermentation in a powerful heat, and is thoroughly kneaded. Parmentier states, that by pressure alone the acorn is deprived of its bitter and astringent juice, and when dried and reduced to a fine powder, is pleasant and nutritious. In this state it has been used as a substitute for coffee. It is probable that if acorns were allowed to germinate, and their growth suddenly stopped by means of heat, as in the process of malting, and then deprived of their remaining bitterness and astringency by maceration in water, or some other method, they would afford a nutritious food. When suffered to germinate a chemical change is produced, and they yield by distillation an ardent-spirit.

The galls on the Oak, caused by the puncture of a species of *cynips*, are used in the manufacture of ink, and for dyeing black. The bark is inodorous, with a rough, astringent taste. It yields its virtues both to water and alcohol. The aqueous infusion has a yellowish colour, and a weak styptic taste ; the decoction has a brown colour, and the austere taste of the bark. Every part of this tree possesses a considerable degree of astringency ; but this property is most abundant in the bark. Dioscorides and Galen, with other ancient physicians, were fully aware of the qualities of the Oak, and by them it was not infrequently prescribed in dysentery, spitting of blood, and uterine hemorrhages. Matthioli, Lonicerus, Horstius, and others also recommend it for similar complaints.

Oak bark is occasionally used in England at the present time as an astringent for outward application, but it is very greatly superseded by other remedies. For medicinal use the

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nous, style short, stigma acute. Fruit a 3-sided, triangular capsule, 3-celled, 3-valved, each cell containing 2 or 3 roundish, oblique, angular, blackish seeds. (Plate XXXV., fig. 3: (a) entire flower, magnified; (b) one of the 3 enlarged stamens; (c) pistil; (d) fruit; (e) transverse section of the fruit; (f) seed, magnified; (g) bulb.)

Distribution.—Supposed to be of Eastern origin, but now widely distributed by cultivation. Flowers June and July.

Etymology.—The origin of the generic name has been already suggested, under GARLIC. *Cepa* is derived from the Celtic *cep*, signifying a head; hence, also, the Latin *caput*, etc.

Properties and Uses.—In warm climates, the Onion contains much more saccharine matter, and in Egypt it is consumed in amazing quantities, and is much esteemed as a delicious food. Hasselquist conjectures that it is the vegetable for which the Israelites longed when in the wilderness. He says, "Whoever has tasted Onions in Egypt will allow that none can be had better in any part of the world. Here they are sweet, in other countries they are nauseous and strong; here they are soft, whereas in the northern and other parts they are hard and their coats so compact that they are difficult of digestion."

The use of the Onion as a pot-herb, salad, and pickle, is extremely common; but it is much more frequently used on the Continent than with us. The odour and taste are analogous to garlic, but are much less powerful. Its volatile particles produce a pungent sensation in the nose, and irritate the eyes, causing a flow of tears. Hence Lucilius calls it *febile capre*. And Shakspeare, adverting to this property, says—

"If the boy have not a woman's gift,
To rain a shower of commanded tears,
An Onion will do well."

Reduced to the state of pulp by boiling, and exhibited either in substance or decoction, it has been found serviceable in many diseases of local or general irritation, such as catarrh of the lungs, urethra, and bladder. It was mostly used as an aqueous decoction with sugar, honey, or milk, and in this form was given in obstinate coughs, asthma, phthisis, and other

pulmonary complaints. Externally, cataplasms of the boiled bulb, or the bulbs roasted and split, have been applied to inflammatory tumours, boils, etc., to diminish painful tension and to promote suppuration. When crude, the Onion has no longer the same emollient and demulcent effects; on the contrary, when applied to the skin it produces redness and inflammation, and taken internally its acrid stimulating quality is manifested in the mouth by pungency, in the stomach by a sense of heat, and on the digestive organs generally by irritation more or less marked. The expressed juice dropped into the ear, or applied upon cotton, is sometimes recommended for deafness; and a small bulb, roasted and applied as hot as can be borne, is often beneficial in earache. The juice is also applied to burns, chilblains, and the bites or stings of insects. In fine, Onion has all the properties of garlic in a smaller degree.

CXLI.

ORCHIS MASCULA, L. EARLY PURPLE ORCHIS.

Nat. Ord. ORCHIDACEÆ.

F. ORCHIS. G. MÄNNLICHES KNABENKRAUT.

Description.—Tubers ovoid, pale brown, surmounted by numerous simple, elongated, fleshy, spreading fibres. Stem erect, simple, cylindrical, fleshy, tinged with purple at the summit, 9 to 16 inches high. Leaves chiefly radical, alternate, obovate-lanceolate or elliptical, plane, or somewhat concave, generally marked with dark purple irregular spots, paler beneath, with numerous slender parallel veins, and a prominent midrib; upper and smaller leaves sheathing at the base. Flowers in a large terminal, lax, oblong spike; of a rich roseate purple, rarely white, with a coloured twisted bract at the base of each. Calyx of 3 leaves or sepals, middle one ascending, bending forwards, lateral ones erect, acute, reflexed back to back, marked with purple veins. Corolla of 3 petals,

2 upper vaulted, lower or lip large, 3-lobed, terminating behind in a horizontal, obtuse, spur, about as long as the ovary; centre of the base of the lip greenish white, spotted; lateral lobes somewhat recurved, middle one smaller, longer, emarginate. Stamen consists of an anther of 2 oblong cells, fixed to the top of the column immediately above the stigma, each cell containing an obovate stalked mass of pollen, composed of grains which cohere elastically, having a gland at the base of the stalk. Ovary inferior, oblong, furrowed, spirally twisted, purplish externally; style conereted into a mass or column with the filaments of the stamens; stigma a depressed viscid space around an orifice which leads to the ovary. Capsule smooth, shining, oblong, 1-celled, 3-valved, containing numerous seeds attached to the sides of the valves. (Plate XXXVII., fig. 2: (a) entire flower, magnified, viewed sidewise; (b) column, showing the pollen-masses, etc., magnified; (c) pollen-mass isolated, magnified.)

Distribution.—Europe, Northern Africa, Western Siberia. Frequent in meadows and pastures in this country. Flowers April to June.

Etymology.—Various species of *Orchis* are mentioned by Dioscorides and others of the ancients. The term *Orchis* is derived from the Greek *ορχις*, testiculus, in allusion to the form of the tuber. Pliny mentions the *orchis* and the *cynosorchis*, which evidently refer to the plants of this curious genus. In Arabic it is called *Sahleb*, whence the English word *salep* is obtained.

Properties and Uses.—The tubers of this plant, together with those of *O. Morio*, L., *O. militaris*, L., *O. ustulata*, L., *O. pyramidalis*, L., *O. coriophora*, L., and *O. longicruris*, Link., furnish an article known as *salep*. "The *salep* of the Indian bazaars, known as *Sálib misri*, for fine qualities of which the most extravagant prices are paid by wealthy orientals, is derived from certain species of *Eulophia*, as *E. campestris*, Lindl., *E. herbacea*, Lindl., and probably others."—*Pharmacographia*, p. 593.

To prepare the tubers for the market they are dug up after the plant has flowered, the plump tubers alone being

kept, which are washed, strung on strings, and scalded to destroy their vitality, after which they are dried by exposure to the sun, or by artificial heat, when they become of a hard horny consistence. After maceration in water for a few hours, they regain their original form and volume. Salep is held in great esteem, not only in India, but also in Persia and Turkey, for recruiting the exhausted strength of enervated or aged persons, and is especially prized as an aphrodisiac; stimulating substances are, however, often combined with it, such as amber, musk, ginger, cloves, cinnamon, etc. The inference deduced from the odour and form of the tubers, as to their reputed effects upon the animal system, must have appeared to the believers in the doctrine of signatures very confirmatory of the truth of their hypotheses. From the odour of the root, Murray (*Apparatus Medicaminum*, vol. v. p. 287) inclines to think that there may be some foundation for its restorative, independent of its nutritive qualities. The tubers of *Orchis mascula* have enjoyed much reputation in former times for their aphrodisiac and restorative powers, and many absurd statements of their effects are recorded by the ancient authors. In dysentery, diarrhoea, nervous fevers, etc., they have been recommended at various times. Fluckiger and Hanbury, however, say that "Salep possesses no medicinal powers, but from its property of forming a jelly with a large proportion of water, it has come to be regarded as highly nutritious, a popular notion in which we do not concur. A decoction flavoured with sugar and spice or wine, is an agreeable drink for invalids, but is not much used in England. As powdered salep is difficult to mix with water, many persons fail in preparing this decoction; but it may be easily managed by first stirring the salep with a little spirit of wine, then adding the water *suddenly* and boiling the mixture. The proportions are, powdered salep 1 drachm, spirit $1\frac{1}{2}$ fluid drachms, water $\frac{1}{2}$ pint."—*Pharmacographia*, p. 594.

CXLIII.

PETROSELINUM SATIVUM, Hoffm. PARSLEY.

Nat. Ord. UMBELLIFERÆ.*F.* PERSIL. *G.* PETERSILIE.

Description.—Root biennial, long, fusiform, whitish, fibrous. Stem erect, round, striated, furrowed, branched, about 2 feet high. Leaves petiolate, decomposed, deep shining green; lower composed of ovate-cuneate, trifid and toothed pinnæ; upper sheathing at the base, the leaflets much less divided, uppermost lanceolate or linear, entire. Flowers small, yellowish, in axillary and terminal umbels of many rays, usually with an involucre of one leaf at the base of the general umbel, and with 6 or 8 small subulate leaves at the base of the partial umbels. Calyx an obsolete margin. Corolla of 5 nearly equal ovate petals with an inflexed point. Filaments 5, spreading, slender, longer than the corolla, tipped with roundish anthers. Ovary ovate, striated, supporting 2 short, diverging styles, terminated by obtuse stigmas. Fruit greenish or ash-coloured, ovate, compressed laterally, somewhat didymous, separable into two carpels or mericarps. (Plate XXXV., fig. 4: (a) root; (b) flower, magnified; (c) fruit, natural size; (d) the same, magnified; (e) transverse section of the same.)

Distribution.—Europe generally. Said to have been introduced into England from Sardinia, in 1548. It is known in this country only as a cultivated plant, or an escape. Flowers June to August.

Etymology and History.—The generic name is derived from the Greek *πετροσελινον*, compounded of *πετρος*, a rock, and *σελινον*, parsley, alluding to the habitat. The Romans called this plant *Apium*, a name which some etymologists derive from *apex*, because the head of victors was crowned with it, and others from *apis*, because bees are fond of it. The plant is now placed by the most recent botanical authorities in the genus *Carum*, and known as *Carum Petroselinum*, Bth.

Parsley was held in great esteem by the ancient Greeks, as it constituted the victor's crown at the Nemean and Isthmian games; it was also used at funerals, and was strewed upon the tombs of the departed. Hence the proverb *δεῖσθαι σελίνου*, to be in need only of Parsley; applied to those dangerously ill and not expected to live. The garlands bestowed upon the conquerors at the games instituted in honour of the illustrious dead were usually of Parsley, as it was thought to have some peculiar relation to the dead, being fabled to have sprung from the blood of Archemorus.

Properties and Uses.—Parsley is well known as a culinary vegetable. Sheep are very fond of it, and it is said not only to render their flesh more delicious, but to preserve them from the rot; it is, however, stated to be a deadly poison to parrots and some other birds. It may appear somewhat credulous to attribute to this plant any deleterious property upon the human subject, but on the authority of several authors it has produced or aggravated epilepsy in various individuals, and has proved injurious to the eyes. Alston says, "I have observed, after eating plentifully of raw Parsley, a fulness of the vessels about the head, and tenderness or a slight inflammation of the eyes and face, as if the cravat had been too tight. Hence it may be said (by rarifying the blood) to hurt the eyes, and to be prejudicial to epileptics."

Nearly every part of the plant in its recent state exhales a strong peculiar odour, which is to most persons agreeable, to some unpleasant. The roots have a sweet and slightly warm taste. The leaves are warm, slightly acrid, and bitterish, and the seeds (fruits) are bitter and aromatic. The root, in addition to its alimentary quality, has been considered diuretic, diaphoretic, and aperient, and has been recommended in jaundice, visceral obstructions, as well as in small-pox. The fruits, like those of umbelliferous plants in general, are reckoned carminative, and recommended in flatulence, etc., and have also been considered diuretic.

The root formed one of the five greater aperient roots of the old pharmacopœias, and a syrup was made from it which was held in great estimation. In comparatively recent times

the expressed juice of the herb has been recommended for the cure of intermittent fevers. But the plant is no longer used in medicine.

CXLIV.

MENTHA PULEGIUM, L. PENNYROYAL.

Nat. Ord. LABIATÆ.

F. MENTHE POULIOT, POULIOT VULGARE. *G.* POLEI.

Description.—Root perennial, firm, creeping, furnished with numerous fibres. Stems prostrate, slender, obtusely quadrangular, branched, downy, 8 or 9 inches high. Leaves opposite, shortly petiolate, frequently deflexed, ovate, obtuse, somewhat crenated, covered with short hairs beneath, and marked with small semi-transparent pores. Flowers in dense, axillary, opposite cymes, resembling whorls, gradually smaller towards the summit of the stem. Calyx tubular, striated, pubescent, with 5 small, unequal, ciliated teeth, mouth closed with hairs during the maturation of the fruit. Corolla pale pink or lilac, sometimes white, pubescent externally, tube longer than the calyx; limb of 4 nearly equal obtuse lobes, upper one entire. Stamens didynamous, erect, diverging, longer than the corolla; anthers oblong, with 2 parallel cells. Ovary small, 4-lobed, supporting a filiform style, and a bifid stigma, longer than the corolla. Fruit consists of 4 small nutlets (some of which are frequently abortive), situated in the persistent calyx. (Plate XXXVI., fig. 4: (a) leaf, magnified, showing the pores; (b) entire flower, magnified; (c) pistil; (d) longitudinal section of the calyx, to show the nutlets.)

Distribution.—Europe, Northern Africa, Siberia, Western Asia. Introduced in North and South America. On moist heaths and pastures, and by the margins of brooks, in this country; frequent in Ireland, but naturalized only in Scotland, and cultivated generally in gardens. Flowers August to September.

Etymology and History.—This plant appears to be the γληχων of Dioscorides. Pliny states that it is called Pulegium, from *pulex*, a flea, because its odour is obnoxious to that insect; hence also the French name Pouliot. According to Gerard it was called in English, Pennyroyal, Pudding-grass, Pulial-royal, and by some Organy.

Pennyroyal was employed by the ancient Greeks as a condiment for seasoning different viands, as at present in this and other countries. In Northern Europe it was also much esteemed, as may be inferred from the frequent reference to it in Anglo-Saxon works on medicine. In Gerard's time the plant was collected on the commons around London, and brought from thence in abundance to the London markets. It is not now included in the Pharmacopœia.

Properties and Uses.—Pennyroyal is "cultivated at Mitcham, and is mostly sold dried. Occasionally the herb is distilled for essential oil. The oil found in commerce is, however, chiefly French or German, and far less costly than that produced in England."—*Pharmacographia*, p. 437.

An alcoholic infusion of Pennyroyal has been used in syncope, asphyxia, and paralysis, as well as in asthma, hysteria, atonic gout, and flatulence. The London Pharmacopœia, 1836, says, "It must not be forgotten that this plant is essentially stimulant, and although admissible in convulsive cough and other affections when accompanied with atony and exempt from phlogosis and irritation, it will be hurtful in contrary circumstances." The distilled water is carminative and antispasmodic, its uses being similar to those of peppermint water.

CXLV.

PÆONIA OFFICINALIS, Retz. COMMON PEONY.

Nat. Ord. RANUNCULACEÆ.*P.* PIVOINE, PIONE. *G.* PFINGSTROSE, KÖNIGSROSE.

Description.—Root perennial, tuberous, thick, fleshy, somewhat fasciculated. Stems erect, cylindrical, thick, succulent, smooth, branched, often purplish red, 2 to 3 feet high. Leaves alternate, petiolate, doubly winged, with unequal segments, and oblong or ovate-lanceolate lobes, glabrous and deep green above, whitish beneath. Flowers large, solitary, terminal, deep red. Calyx consists of 5 unequal, ovate, concave sepals. Petals 5 to 10, large, rounded, concave, destitute of claws. Stamens numerous, attached to the receptacle, with short slender filaments supporting oblong anthers. Ovaries from 2 to 5, ovate-lanceolate, surrounded at the base by a fleshy disk, and crowned by sessile, thick, obtuse, curved stigmas. Fruit consists of 2 to 5 capsules or follicles, ovate, pubescent, nearly straight, bright red within, crowned with the bilamellated stigmas, and containing numerous dark shining seeds. (Plate XXXVI., fig. 3: (a) calyx and pistils with a few stamens remaining; (b) seed; (c) longitudinal section of the same, showing the embryo at the base of the albumen.)

Distribution.—South of Europe and temperate Asia. It is now very commonly cultivated in the British garden, for the sake of its showy flowers, which appear in June.

Etymology.—The name Pæonia is derived from that of Pæon, the celebrated physician, who, according to ancient mythology, first discovered the medicinal properties of the plant, and with it cured Pluto of a wound inflicted by Hercules.

Properties and Uses.—The root is brown externally, white within, diffusing a faint, unpleasant, subnarcotic odour, and a mucilaginous, subacid taste, with some bitterness and astringency. The flowers have a more decided narcotic odour than the root, and an austere sweetish taste, which they yield,

together with their colour, both to water and spirit. If implicit confidence might be placed in the accounts handed down to us of the cures effected by this plant, it might truly be called an heroic medicine. Galen speaks of the root as a remedy for epilepsy, being cut into thin slices and suspended about the neck as an amulet. Fernel, Willis, and Brendel also consider it a valuable remedy in this disease, but they recommend it to be given internally twice or thrice a day. Home administered it in epilepsy. Its medicinal reputation, however, belongs to a past age, the plant being valued now only on account of its ornamental appearance.

CXLVI.

VINCA MINOR, L. LESSER PERIWINKLE.

Nat. Ord. ASCOYNEA.

F. PERVENCHE, VIOLETTE DES SORCIERS. *G.* KLEINES SINGRÜN.

Description.—Root perennial, creeping, slender, and fibrous. Stems slender, ligneous, creeping, cylindrical, very smooth, 4 to 12 inches high. Leaves nearly sessile, opposite, elliptical-lanceolate, coriaceous, glabrous, deep shining green, entire, smooth at the margin. Flowers solitary, axillary, pedunculate. Calyx with 5 glabrous, lanceolate, somewhat subulate teeth, shorter than the tube of the corolla. Corolla spirally imbricated in the bud, with a whitish tube, dilated at the summit, a plaited orifice, and a limb with 5 plane, oblique, truncate, purplish blue segments. Stamens 5, filaments short, enlarged towards the summit into membranous scales, terminated by erect, obtuse, cuneiform, approximated anthers. Ovary 2, subglobose, with 2 glands at the base; style obconical, supporting a roundish depressed body, upon which is situated the concave, knobbed, woolly stigma. The fruit (rarely seen) consists of two elongated, erect, diverging follicles, 1-valved, opening longitudinally, and containing several oblong, furrowed, naked seeds. (Plate XXXVI., fig. 1: (a) tube of corolla, opened to show

the stamens; (b) stamen, magnified; (c) calyx and ovaries; (d) pistil; (e) fruit, composed of two follicles.)

Distribution.—Europe, from Denmark, southwards, W. Asia. In hedges and woods in this country, often near shrubberies. Flowers April and May.

Etymology.—The generic name is derived from *vincio*, to bind, from its being used in the olden time as a coronary plant, in which character it was employed at public festivals, weddings, and funerals. It was formerly called in botanical works, *Pervinca*, from *pervincere*, to overcome, as some imagine because it resists the winter's cold: hence, also, the French *Pervenche*, and the English *Periwinkle* or *Pervinkle*.

Chaucer, in his *Romaunt of the Rose*, mentions the *Periwinkle* as one of the ornaments of the God of Love; and in the same poem, speaking of a garden, he says:—

“There sprange the violet al newe,
And fresh Pervinke, rich of hewe,
And flouris yellowe, white and rede;
Such plente grew there ner in mede.”

Properties and Uses.—The plant is totally inodorous; of a persistent bitterish taste in its recent state, and astringent when dried. On account of this astringency, the leaves have been recommended for tanning leather. It has been much extolled for its power of arresting hemorrhages. The bruised leaves, introduced into the nostrils, have been recommended for stopping bleeding at the nose; and an aqueous decoction taken internally, in sanguineous hemorrhoids, chronic diarrhœa, etc.

Agricola, Tissot, and Bourgois speak of its efficacy as a gargle in inflammatory sore throat; others have recommended it in the same form in relaxation of the palate and uvula, in atonic engorgements of the mouth and pharynx, and in some affections of the gums.

CXLVII.

ANAGALLIS ARVENSIS, L.

SCARLET PIMPERNEL, OR POOR MAN'S WEATHER GLASS.

Nat. Ord. PRIMULACEÆ.*F. MOURON. G. ACKER GAUCHHEIL.*

Description.—Root annual, tapering, descending, whitish, with numerous slender fibres. Stems procumbent, nearly quadrangular, furrowed, branched at the base, 3 to 6 inches long. Leaves opposite, ovate, acute, sessile, 3-nerved, shining green, entire, sprinkled with purplish dots beneath. Flowers solitary, axillary, opposite, on long cylindrical peduncles. Calyx of 5 lanceolate, acute, spreading segments, keeled beneath. Corolla rotate, bright scarlet, with a deep purplish tinge at the base, composed of 5 ovate petals connected by the claws; margins crenate with glandular hairs. Stamens 5, erect, with purplish hairy filaments attached to a prominent disk below the ovary, and yellow, simple, cordate anthers. Ovary globose, supporting a cylindrical, rather oblique style, as long as the stamens, tipped with a capitate greenish stigma. Fruit a globose, 1-celled capsule, embraced by the persistent calyx, opening transversely all round, and containing several angular seeds. (Plate XXXVI., fig. 2: (a) magnified view of a petal, showing the glandular hairs of the margin; (b) stamens, magnified; (c) pistil; (d) capsule, natural size.)

Distribution.—Europe, Northern Africa, Siberia, Western Asia, to the Himalaya. Introduced in America. In fields and waste places in this country. Flowers May to October.

Etymology.—The generic name is derived from *αναγελαι*, to laugh; because, according to Dioscorides and Pliny, the plant removes obstructions of the liver and spleen, which induce sadness; or, as some suppose, on account of the beauty of its flowers. It is called Poor Man's Weather Glass, on account of the flowers generally closing on the approach of rain.

Properties and Uses.—According to Bechstein, the Pimpernel is much relished by sheep, and it was formerly in great

repute for curing the giddiness to which that animal is subject. The seeds are much sought after by small birds. The plant is inodorous; to the taste it is somewhat acrid, bitter, and subastringent. By the early writers it was thought capable of producing very potent effects upon the animal economy, and Orfila places it among the narcotico-acrids, in the same rank with birthwort, rue, etc. He gives the following account of its effects upon animals:—

“At eight in the morning three drachms of the extract of pimpernel, prepared by evaporating in a water-bath the juice of the fresh plant, were introduced into the stomach of a robust dog. At six in the evening he was dejected, and at eleven sensibility appeared diminished. The next morning, at six, he was lying down, apparently dead, and might be displaced like a mass of inert matter. He expired half an hour after. The mucous membrane of the stomach was slightly inflamed; the interior of the rectum was of a bright red colour; the ventricles of the heart were distended by black coagulated blood; the lungs presented several livid spots, and their texture was preternaturally dense. Two drachms of the same extract, applied to the cellular texture of a dog's thigh, caused death in twelve hours with the same symptoms as the preceding. M. Gronier gave to horses some tolerably strong doses of the decoction of this plant, and he observed almost constantly a trembling of the muscles of the posterior extremities as well as those of the throat, and a copious flow of urine. After death the mucus membrane of the stomach was found inflamed.”

Many of the old practitioners considered this plant a remedy for mania and melancholy. Quercetanus, who was celebrated for his treatment of mania, made use of a simple decoction of Pimpernel, having previously administered to the patient emetics and strong purgatives. Others employed the tincture, or the expressed juice, either alone or combined with the tincture of St. John's wort. Dioscorides mentions it as a remedy for the bites of vipers, hence it came to be administered in hydrophobia, and obtained considerable reputation as an antillysic. Ravenstein brings forward several cases of

persons bitten by rabid animals, who recovered by the free use of this plant. More recently Gmelin has enumerated several cures produced by it. He exhibited every six hours twenty grains of the powdered herb in a cupful of an infusion of the plant, combined with fifteen drops of volatile alkali. This was continued for four days, the infusion being taken for ordinary drink; and linen saturated with the infusion was at the same time kept constantly applied to the wounded part. In some cases baths impregnated with the plant were used, the wounds were scarified, mercurial ointment was rubbed in, and twice the above dose was exhibited. It, has, moreover, been considered efficacious in gout, dropsy, phthisis, and other pulmonary complaints. Its uses, however, may perhaps be referred to mere fancy.

CXLVIII.

PINUS SYLVESTRIS, L. SCOTCH FIR, OR PINE.

Nat. Ord. CONIFERÆ.*F. PIN. G. KIEFER, FÖHRE.*

Description.—A lofty tree, 50 to 100 feet high, but seldom straight in its growth; branches numerous, oblique; bark rough, brown, which scales off in large thin flakes. Leaves in pairs, evergreen, rigid, linear, straight, acute, minutely serrulate, rather concave above, glaucous beneath, 2 inches or more long, furnished at the base of the sheath with a small, reddish scale. Flowers terminal and erect, monœcious, united in catkins. Males in small, short, compact, terminal, yellowish catkins, composed of scales imbricated in a spiral manner, soon surmounted by a protruding leafy branch. Filaments very numerous, connected below into a cylindrical column, with oblong, wedge-shaped anthers of 2 cells, crowned with a jagged, membranous crest. Female flowers in an ovate, roundish catkin, variegated with green and purple, each bract containing 2 naked ovaries. The year after impregnation, the young fruit

or cone becomes lateral-stalked, reflexed, and more ovate; and the second year, the scales being indurated, forms an ovate, pointed, tessellated, woody cone. The winged seed has a hard crustaceous integument. (Plate XXXVII., fig. 3: (a) the male catkin with its bracts; (b) the anthers; (c) the crest of the anthers; (d) the female catkin with its bracts; (e) a ripe cone; (f) seed with its wing.)

Distribution.—Plains of Northern and mountains of Southern Europe, Siberia, Dahuria. It is the only species of *Pinus* indigenous to this country, and was formerly found native in many parts of Britain. It is now largely grown in plantations. Flowers May and June.

Etymology.—The generic name is derived from the Celtic *pin* or *pen*, a rock or mountain. It was called *Pin* in Armoric, *Peigne* in Erse, *Pinna* in Welsh, and *Pinn* in Anglo-Saxon.

Properties and Uses.—This tree affords a very valuable timber; the different varieties of which are known as Norway, Red, Baltic, or Riga Pine; used for masts, rafters, floors, wainscots, tables, and for numerous other purposes. In the highlands of Scotland the roots are used by the poor as a substitute for candles. The tops, or young shoots, are given to animals, during the winter season, instead of fodder. The outer bark is employed in tanning leather, and the inner is sometimes converted into ropes. The bark-broed of the Laplanders is made from the inner bark of this tree, the process of which is thus described by Linneus in his *Flora Lapponica*: "They select the loftiest trees, and those which are least branched and contain least resin; the dry and scaly outer bark is completely removed, and the inner, soft, white, and succulent bark is alone selected. When required for use, it is slightly roasted over burning coals, then broken in pieces and ground to powder or flour; this flour being mixed with water, forms a very limp kind of bread, which is baked in an oven, and forms, not unfrequently, part of their food for a year together. The Novacolæ also fatten their pigs upon this substance."

From the trunk and branches of the Scotch Fir is obtained turpentine, tar, pitch, and rosin. Turpentine, however, is pro-

duced from several other species of *Pinus*, both European and American; that from Finland and Russia is principally yielded by the species under consideration. It is obtained by tapping the trees and placing a vessel beneath to catch the juice as it exudes. Some of the juice exudes upon the stem, and this is known in France as *galipot* or *barras*. Tar is obtained in large quantities, in Sweden and Russia, from the Scotch Fir, by a process of dry distillation, by burning billets of the wood and roots in a cavity dug in the ground. The pieces are piled up and covered with turf; fire is then applied to the wood, and it is suffered to burn slowly. During this process the tar is formed, and runs off at the bottom of the pile into a channel cut for the purpose, and is then collected in barrels. Much of the tar imported into England is brought from the Baltic. The process for obtaining tar at the present day differs but little from that pursued by the ancient Macedonians as described by Theophrastus (Lib. ix., c. 3.) Tar is also obtained from other species of Pine. Pitch is the residuum from the distillation of wood tar. If the process of inspissation is carried to its utmost limit the pitch becomes hard and dry. Rosin is the residue of the distillation of oil of turpentine.

All these products are valuable in the arts and manufactures, and are likewise used in medicine. Turpentine and rosin are ingredients in plasters and ointments. "Oil of turpentine is occasionally administered internally as a vermifuge or diuretic, and applied externally as a stimulant." Tar is used in medicine as an ointment in cutaneous diseases; and pitch, also, in the form of an ointment, or in plasters, as well as in pills for internal use.

It is evident, from the writings of the ancients, that they were acquainted with the medicinal uses of turpentines, and in addition to the diseases in which they are now employed, they prescribed them in lethargy, hypochondriasis, coughs, and various pulmonary affections. The turpentines appear to derive their virtues from the essential oil they contain, which, in large doses, produces nausea, unpleasant eructations, slight vertigo, or intoxication, and frequently catharsis; in small doses it chiefly acts upon the kidneys. It has been used in

chronic rheumatism and paralysis, and has been considered a powerful remedy against tapeworm. Warm oil of turpentine, applied externally, is by some considered a useful primary application to extensive burns; and an excellent liniment for this purpose is made with two ounces of the oil to four ounces of linseed oil.

Tar is considered stimulant, diuretic, and sudorific, and externally detergent. It has been highly commended in scabies, given in the form of pills with powder of liquorice, and has constituted a favourite domestic remedy in Sweden, for warding off the contagion of small-pox. It has been more generally employed in the form of tar-water in dyspepsia and cutaneous affections.

Pitch has had the reputation of removing corns, and has been used in various rheumatic affections. Linneus and Gmelin state that the buds of the Pine are used in Siberia as a remedy for scurvy; given in decoction in milk, whey, wine, or beer. According to Murray, the bark, leaves, and tops of Pine have similar properties to the buds, and the decoction has been used externally for the same purposes as tar-water. The young cones yield, by distillation, an essential oil, somewhat resembling that of turpentine.

CXLIX.

PLANTAGO MAJOR, L. GREATER PLANTAIN.

Nat. Ord. PLANTAGINÆÆ.*F.* PLANTAIN. *G.* GROSSER WEGERICH.

Description. — Root perennial, consisting of numerous whitish, cylindrical, descending fibres, proceeding from a hard ligneous stock or head. Leaves all radical, large, broadly ovate, obtuse spreading, nearly glabrous, entire or toothed, 7-nerved, sinuated at the margin, slightly decurrent upon the channelled petiole, which is variable in length, sometimes as long as the leaves. Scape simple, straight, slightly angular,

pubescent upwards, terminating in a slender dense spike 4 to 6 inches long. Calyx of 4 small, erect, greenish, membranous divisions, with a concave bract at the base. Corolla 4-cleft; segments reflexed, brownish. Stamens 4, with long, capillary, erect filaments, tipped with roundish purple anthers. Ovary inferior, ovate; style filiform, shorter than the stamens; stigma simple, hairy. Fruit an ovate capsule with 2 cells bursting all round transversely, containing 6 or 8 oblong, reddish brown seeds in each cell. (Plate XXXVII., fig. 4: (a) entire flower with its bract; (b) corolla, opened; (c) pistil; (d) capsule, with the superior part detached, magnified; (e) seed, magnified.)

Distribution.—Europe, Northern Africa, Northern Asia, Western Asia to the Himalaya. Introduced into North America. Common in this country in pastures and waste places. Flowers May to September.

Etymology.—The generic name is of uncertain origin. It is probably derived from *planta*, the sole of the foot, in allusion to the broad flat leaves lying close upon the ground. This species is called Way-bred, from its prevalence on the way-side. "It appears to follow the migrations of man, as if domesticated or sympathetically attached to the human race. Thus, though not purposely conveyed, it has followed our colonists to every part of the world, and has, among the natives in some of our settlements, been emphatically named 'The Englishman's Foot;' for, with a strange degree of certainty, wherever it is found, there our countrymen have trod."

Properties and Uses.—This plant is inodorous; the leaves have an herbaceous, bitterish, slightly acrimonious, and sub-astringent taste; the root, especially when dried, has more of a sweetish taste, and tinges the saliva of a reddish colour. According to the Swedish experiments, the foliage of the Greater Plantain is refused by kine and horses, but eaten by goats, sheep, and swine. The seed is well known as the favourite food of many small birds.

Themison is reputed to have first introduced the Plantain into use. Dioscorides is very lavish of praise with regard to its manifold virtues: he commends it in inflammations, pustules, bleedings, bites of rabid animals, tumours, ulcers, also for

ophthalmia, hysteric fits, dysentery, etc., externally applied; and internally for fluxes, hemorrhages, dysentery, asthma, phthisis, ulcers in the kidneys and bladder; and as a remedy for intermittent fevers. Galen and numerous other writers follow him with nearly the same category. Bergius adds his testimony to the febrifugal qualities of the root. Externally the leaves are commonly applied by country people to recent wounds and sores; they are also used in the form of a poultice to cleanse and heal foul ulcers; fomentations with the decoction are recommended for the same purpose likewise in *prolapsus ani*. Gargles have been made with the root and leaves.

CL.

POLYPODIUM VULGARE, L. POLYPODY

*Nat. Ord. FILICES.**F. POLYPODE. G. TÜPFELFARN.*

Description.—Rhizome creeping, ligneous, horizontal, dark brown externally, greenish internally, covered with reddish membranous scales, and furnished with dark-coloured fibres. Fronds about a foot long, deeply bipinnatifid, with linear-lanceolate, alternate, parallel, obtuse segments, somewhat crenulate at the margin, gradually decreasing in size upwards, and supported on a long, cylindrical, smooth footstalk. Fructification of small yellowish brown masses, called sori, arranged in a single series on each side the midrib of the leaflets; sometimes so numerous as to be confluent. Sori naked, *i.e.*, not covered by any tegument or involucre, and consist of numerous capsules or conceptacles; each of which is pedicellate, 1-celled, with an articulated ring, opening transversely with elasticity, and ejecting the numerous minute spores. (Plate XXXVIII., fig. 1: (a) portion of frond, showing fructification, magnified; (b) mass of sori, removed from the back of the leaf, magnified; (c) capsule, magnified; (d) the same, opening elastically and discharging the spores.)

Distribution.—Europe, Northern and Southern Africa, Siberia, Dahuria, Japan, Western Asia, North America. Frequent on old walls, banks, and stumps of trees in this country. In fructification from June to September.

Etymology.—The name Polypodium is derived from πολυ, many, and πους, ποδος, a foot, in allusion to the numerous roots, or to the segments of the fronds.

Properties and Uses.—The rhizome (commonly called the root) is nearly inodorous; the taste is at first sweetish, becoming bitter, nauseous, and slightly astringent. The slight medicinal virtues of Polypody have been quite obscured by the praises lavished upon it by the ancients. Hippocrates, Theophrastus, Dioscorides, Celsus, and Paulus Egineta attribute to it the power of expelling bile and pituita; consequently it was much used in maniacal melancholic disorders, and in visceral obstructions. Parkinson recommended it, combined with foxglove, as a remedy in epilepsy. The reputed value of Polypody is probably to be attributed solely to its purgative properties, which it possesses only in its recent state, and in large doses.

The leaves are sometimes burnt for the sake of the ashes, which contain a large proportion of carbonate of potash.

CLI.

PAPAVER RHCEAS, L. RED OR CORN POPPY.

Nat. Ord. PAPAVERACEÆ.

F. COQUELICOT. *G.* KLATSCHROSE, WILDER MOHN.

Description.—Root annual, slender, nearly simple, whitish, somewhat fibrous. Stem erect, branched, pale green, 1 to 2 feet high, clothed, as well as the flower-stalks, with horizontally spreading bristly hairs. Leaves alternate, sessile, pinnatifid, with incised or deeply serrated, lanceolate segments, covered with short hairs. Flowers large, terminal, showy, drooping previous to expansion. Calyx of 2 ovate, hairy, concave,

caducous sepals. Petals 4, large, roundish, undulated, bright deep scarlet, sometimes marked with a black spot at the base. Stamens very numerous, inserted upon the receptacle; with capillary, purplish filaments, and oblong dark purple anthers, containing dull greenish pollen. Ovary superior, smooth, crowned by a large sessile, peltate stigma, with 8 to 10 diverging rays. Capsule smooth, nearly globose, or urn-shaped, crowned with the persistent dark-coloured stigma; seeds attached to parietal placentæ, forming incomplete dissepiments, equal in number to the rays of the stigma, very numerous, reniform, and escape by pores underneath the stigma. (Plate XXXIX., fig. 2: (a) stamens and pistil; (b) stamen; (c) capsule, of the natural size; (d) the same, cut transversely to show the dissepiments.)

Distribution.—Europe, Northern Africa, Western Asia to India. In this country in corn-fields and waste places. Flowers June to August.

Etymology.—The specific name *Rhœas*, so called from the *ρῶας* of Dioscorides, is supposed to be derived from *πεω*, to fall, in allusion to the caducous nature of the calyx. It is called provincially Corn-rose, Wind-rose, Cup-rose, Canker-rose, and Head-wark.

Many fine varieties of the common Red Poppy are cultivated in gardens, but it is nowhere a more pleasing object than in its native places of growth, except to the farmer, for—

“Poppies nodding, mock the hope of toil.”—CRABBE.

Cowley intimates that Morpheus showers his blessings upon the toiling peasant in preference to the prince:—

“His Poppy grows among the corn.”

Properties and Uses.—The foliage of this plant, it appears, may be used for culinary purposes, for Sibthorpe saw an old woman in Arcadia gather the leaves of wild Poppy with those of dock for her supper. The seeds are used in Poland and some parts of Russia as an ingredient in soups, and to make gruel and porridge. The bright scarlet petals impart their

colour to water, and this, with the addition of vitriolic acid, is stated to dye cloth, linen, silk, and cotton of a beautiful deep red shade. The recent flowers have a tolerably strong odour, of the disagreeable narcotic kind, and a mucilaginous slightly bitter taste. The petals have the reputation of being slightly sudorific and anodyne, hence it has been recommended in diseases where these properties are desirable. Ettmuller employed it in all active inflammations, in erysipelas, in inflammation of the lungs, liver, spleen, and intestines, but more especially in peripneumony and pleurisy. In obstinate catarrhs and pulmonary affections, the infusion was frequently given by Chomel, and he also asserts that the same used in pleurisy, will frequently render the perspiration more abundant.

At the present time the petals of the Red Poppy are used in pharmacy only for the sake of the red colouring matter.

CLII.

PAPAYER SOMNIFERUM, L. WHITE POPPY.

Nat. Ord. PAPAVERACEÆ.*F.* PAVOT. *G.* SCHLAFBRINGENDER MOHN.

Description.—Root annual, fusiform, yellowish white, branching, and fibrous. Stem erect, cylindrical, glaucous green, smooth below, sometimes with a few scattered, expanded hairs towards the summit. Leaves large, wavy, alternate, sessile, amplexicaul, incised, unequally toothed, glabrous on both sides, pale, glaucous green. Flowers large, terminal, solitary, drooping in the bud. Calyx of 2 concave, glabrous, caducous sepals. Corolla of 4 large, rounded, bluish purple or white petals, usually marked at the base with a purple eye. Stamens very numerous, inserted on the receptacle, with setaceous filaments dilated upwards, and oblong, obtuse, compressed, erect anthers. Ovary globose, crowned by a large radiating sessile stigma, of 8, 10, or more rays, with a thin, deflexed margin. Capsule globose, or nearly so, large, glabrous, 1-celled,

divided halfway into spurious cells by the incomplete dissepiments to which the seeds are attached, opening at the summit by apertures beneath the stigma. Seeds very numerous, reniform, small, whitish. (Plate XXXIX., fig. 1: (a) stamens and pistil; (b) single stamen; (c) capsule; (d) the same, cut transversely; (e) seed, magnified; (f) longitudinal section of the same, to show the embryo).

Distribution.—Europe, Western Africa, Asia generally. Introduced in North America. In corn-fields and waste places in some parts of England, but it has no claim to be considered a British plant: it varies both in the form of the capsule, in the colour of the flowers—being white or bluish purple,—and in having black or white seeds.

Etymology and History.—The Latin name *Papaver* is thought to be derived from the Celtic *papa*, *pap*, the soft food given to children, in which the seeds were formerly boiled to induce sleep. The plant is denominated *μηκων* in the Greek writings. Opium is so called from *οπος*, juice—the juice, *par excellence*. Gerard states that the garden Poppy is sometimes called Cheese-bowls.

The Poppy appears to have been cultivated many years prior to the era of Hippocrates, most probably for the sake of its edible seeds; as we find scarcely any mention of its narcotic properties before the time of Heraclides of Tarentum. Some have thought that opium was the *Nepenthes* of Homer, the effects of which Helena learned from the Egyptians; but this opinion is controverted by Dr. Christen.

The poets of our own country make frequent allusions to the somniferous qualities of the Poppy. Spenser, describing the plants that grew in the garden of Mammon, says:—

“There mournful cypress grew in greatest store,
And trees of bitter gall and heben seed,
Dead-sleeping Poppy, and black hellebore.”

Faery Queen.

“Not Poppy, nor mandragora,
Nor all the drowsy syrups of the world,
Shall ever medicine thee to that sweet sleep
Which thou owedst yesterday.”

SHAKESPEARE.

"And pale Nymphaea with her clay-cold breath;
And Poppies, which suborn the sleep of death."

HARTE.

Properties and Uses.—The seeds yield by expression a bland, nutritive oil, with a nutty flavour, which may be substituted for that of olives or almonds in culinary and other processes. The marc left after expression affords good fodder for cattle, and may be given to poultry. In some parts of Italy and Germany these seeds are made into cakes, etc., after the manner of the ancient Egyptians, Greeks, and Persians, who are said to have mixed them with flour, honey, and other substances for culinary use. They are also used by the name of maw-seed, as a cooling food for singing birds. Linneus counted 32,000 seeds in one capsule.

The leaves and stem of Poppy afford a white, opaque, narcotic juice, which is, however, most abundant in the capsules; and these are consequently the officinal parts of the plant.

"Poppies are grown for medicinal use in many parts of England, mostly on a small scale. The large and fine fruits (Poppy-heads) are usually sold entire; the smaller and less sightly are broken, and the seeds having been removed, are supplied to the druggist for pharmaceutical preparations. The directions of the Pharmacopœia as to the fruit being gathered when 'nearly ripe' does not appear to be much regarded."—*Pharmacographia*, p. 40.

At the present time Poppy-heads are commonly used as a sedative in the form of syrup or extract, and as an anodyne, for external application, in the form of a hot decoction.

Opium, which is the principal produce of *Papaver Somniferum*, is the juice obtained by incisions made in the capsules. The medicinal properties of opium have been known from a very remote period. Theophrastus seems to have been acquainted with it, and we have records of its continuous use since his time.

"The Poppy, in whatever region it may grow, always contains a milky juice possessing the same properties; and the collection of opium is possible in all temperate and sub-tropical climates where the rainfall is not excessive. But the pro-

duction of the drug is limited by other conditions than soil and climate, among which the value of land and labour stands pre-eminent. At the present day opium is produced on an important scale in Asia Minor, Persia, India, and China; to a small extent in Egypt; the drug has also been collected in Europe, Algeria, North America, and Australia, but more for the sake of experiment than as an object of commerce."—*Pharmacographia*, p. 42.

The process of collecting the juice from the Poppy-head, and preparing the opium for the market, varies slightly in different countries, but the following description may be taken broadly as applying to all. When the capsules are little more than half ripe they are scratched, by making at sunset two or three longitudinal incisions from below upwards, without penetrating the interior cavity. The night-dews favour the exudation of the juice, which is collected in the morning with a small iron scoop, and deposited in an earthen pot, where it is worked by wooden spatulas in the sunshine until it obtains a proper consistence. This process is repeated every second day as long as any juice will exude, and the capsules are then allowed to ripen. The whole of the collections are lastly formed into cakes, which are covered with Poppy-leaves.

Turkey opium, which is the best kind, is found in the market in flattish cakes, covered with dried leaves of Poppy, and the capsules of some species of *Rumex*. Foreign opium contains many impurities, and is extensively adulterated. Good Turkey opium should be of a colour varying from chestnut to a blackish brown; the lumps should be of such a consistency as to be easily cut with a knife. It has a peculiar narcotic smell, and a nauseous bitter taste. Turkey opium is often adulterated with the pounded Poppy capsules, pulp of figs, apricots, gum tragacanth; and even bullets, stones, and earth are sometimes found enclosed.

So far as the cultivation of the Poppy, for the production of opium, in Europe is concerned, many experiments have been made in Germany, Switzerland, Italy, and Greece, as well as in England. In France, however, opium-growing has been the most seriously attempted; and though well-spoken of,

European opium has never become an acknowledged branch of industry.

The analysis of opium has much occupied the attention of chemists. Their researches have made us acquainted with the existence of a peculiar salifiable base in opium, which has been denominated *morphia*, and to which its sedative and narcotic powers are in great part attributable. It also contains another principle, named *narcotine*, upon which its exciting effects are said to depend. Besides these, other alkaloids have been detected in opium, numbering in all about sixteen.

To enter circumstantially into the patronage which it received at the hands of many able foreigners is not requisite; but it will suffice to say, that its extensive practical utility was not known in this country until the time of Sydenham. Since that period it has continued to be the most popular, as well as the most powerful, narcotic used in medicine. From the power which this valuable drug possesses of relieving pain and allaying inordinate restlessness, it has naturally been employed in a variety of diseases. In some diseases of debility opium is very efficacious. It was formerly much used in intermittents, but it has now almost entirely given place to the more specific febrifuge properties of bark and quinine. Sydenham and others recommended it, particularly in combination with emollients, in dysentery. In cholera it was also a frequent remedy, and, in the form of laudanum, not unfrequently administered to arrest nausea and vomiting.

"Opium possesses sedative powers which are universally known. In the words of Pereira, it is the most important and valuable medicine of the whole *materia medica*; and we may add, the source, by its judicious employment, of more happiness, and by its abuse, of more misery, than any other drug employed by mankind."—*Pharmacographia*, p. 60.

With regard to its poisonous properties we are told, "The effect of a small dose is at first stimulating; the action of the heart and arteries is increased, and a slight sense of fulness is caused in the head. This stimulus in most persons is very slight; but by repeating small doses frequently, it may be kept up for a considerable time in some people. In this way

are produced the remarkable effects said to be experienced by opium-eaters. These effects are described as always in the first instance stimulant, the imagination being rendered brilliant, the passions exalted, and the muscular force increased; and this state endures for a considerable time before the usual stage of collapse supervenes." The "Confessions of an English Opium-eater" contains a vivid description of its effects. But however baneful the consequences, so enchanting are the temporary sensations, that the infatuated victim is miserable without his ordinary stimulus, although its effects, when long continued, are at first obstinate costiveness, succeeded by diarrhoea, flatulence, and loss of appetite, and eventually by impaired vigour both of mind and body.

Laudanum and syrup of Poppies are two of the best known preparations of this plant.

CLIII.

ONONIS ARVENSIS, L.

REST-HARROW, OR WILD LIQUORICE.

Nat. Ord. LEGUMINOSÆ.*F.* ARRÊTE-BŒUF, BUGRANE. *G.* HAUECHEL.

Description.—Root perennial, strong and woody, creeping, often a foot or more long, and varying in size from the thickness of a quill to that of the finger; brown externally, whitish within. Stems annual, round, woody, branched, leafy, erect or procumbent, more or less hairy, purplish. Leaves alternate, deep green, elliptical or ovate, somewhat cuneate at the base, petiolate, rather rough with hairs, furrowed, lower ones ternate; stipulate, stipules adnate to the petiole. Flowers large, axillary, solitary, rarely twin, on short peduncles, rose colour, sometimes white. Calyx campanulate, hairy, deeply divided into 5 linear ribbed segments. Corolla with a broad striated standard twice as large as the other petals, 2 oblong wings, and a pointed keel. Stamens 10, filaments united below, uppermost separable

from the rest. Ovary superior, small, ovate, greenish, supporting a slender, glabrous, permanent style, with a simple minute stigma. Fruit a small, oval or rhomboid, turgid legume, scarcely longer than the permanent calyx, containing a few reniform tuberculated seeds. (Plate XXXVIII., fig. 2: (a) calyx; (b) standard; (c) wing; (d) keel; (e) stamens and pistil; (f) pistil; (g) fruit; (h) seed, magnified.)

Distribution.—Europe, Azores. Frequent in this country, in dry pastures and sandy shores. Flowers June to September.

Etymology.—The generic name is derived from *ovos*, an ass, and *ovnu*, to delight, because the foliage is said to be grateful to asses. Theophrastus writes it *ovonic*, but Dioscorides changes the orthography to *aronic*. It has been called in Latin *remora aratri*, *resta bovis*; in French Arrête-bœuf; in English Rest-harrow, and by synonymous terms in other languages, in reference to its strong, creeping, tangled roots, which retard the operations of the ploughman. Other names of this species are Wild Liquorice, Cammock, Petty Whin, and Ground Furze.

Properties and Uses.—Rest-harrow, though commonly regarded as a troublesome weed, is, on the authority of most authors, much relished by asses, and is eaten by oxen, goats, and sometimes by sheep, though refused by horses and swine. The peasantry in some countries eat the young shoots as a salad, or boil them with other pot-herbs. It has been used many ages ago as a culinary vegetable, for we find Dioscorides speaking of the shoots as an agreeable pickle.

The foliage is somewhat viscid to the touch, and has a strong, peculiar, rather disagreeable smell. The root has a similar odour, and a sweetish leguminous subviscid taste, resembling the flavour of a ripe pea or that of liquorice. Rest-harrow, though now disregarded, was much employed and highly commended by the practitioners of the olden time. Dioscorides and Galen highly extol its diuretic and lithontriptic qualities. Simon Pauli speaks of it as an incomparable remedy in calculus of the kidneys or bladder. Matthioli, Pfisterus, Ettmuller, Bergius, Plenck, Meyer, Gilibert, and other writers, all speak of its medicinal virtues.

The distilled water was formerly employed against internal hemorrhages; the decoction has been used, with the addition of a little vinegar, as a gargle in looseness of the gums, scorbutic ulcers, and toothache. In Hungary they use a vinous decoction of the plant, to which is added an onion and a few cloves, as a fomentation to the head, in the delirium of malignant fever. The root, or the bark of the root, is the part that has been mostly used. A preparation, made by digesting the whole plant in rectified spirits for several days, has also had a great reputation.

CLIV.

ROSA CANINA, L. Dog Rose.

Nat. Ord. ROSACEÆ.*F.* CYNORRHODON. *G.* HUNDS-ROSE.

Description.—A straggling shrub, 6 to 10 feet high. Stems diffuse, much branched, glabrous; branches light green, often tinged with red, armed with strong, scattered, hooked, compressed prickles, considerably dilated at the base. Leaves distant, composed of 5 to 7 ovate or oblong, flat or concave, acute or rounded, subsessile leaflets, with acute, unequal, sometimes compound serratures, destitute of glands; petioles furnished with a few small-hooked prickles, and with bifid, acute, somewhat reflexed stipules at the base. Flowers sometimes solitary, sometimes in cymes; peduncles smooth, with 2 opposite, ovate-lanceolate, acute, rather concave, finely toothed bracts, glandular at the edge. Calyx tube smooth, ovate, or somewhat elliptical; limb 5-parted; the divisions pinnate, spreading, sharp-pointed, and deciduous. Corolla of 5 obcordate concave petals, delicate pink, whitish at the base, fragrant. Stamens numerous, with spreading setaceous filaments inserted into the calyx; anthers yellow, innate, 2-celled. Disk very thick and elevated. Ovaries numerous (20 to 30), oblong, rather woolly, included in the tube of the calyx; styles included or a little exserted, nearly smooth, crowned with

turbinate, truncate stigmas. Fruit ovate or oblong, scarlet, shining, formed by the enlarged fleshy tube of the calyx, and enclosing the pericarps. Pericarps or carpels somewhat ovate, uneven, bony, whitish, bristly, indehiscent, 1-seeded. (Plate XXXVIII., fig. 3: (a) longitudinal section of the calyx, showing the pistils and stamens; (b) fruit; (c) pericarp, isolated.)

Distribution.—Europe, Northern Africa, Siberia. Frequent in hedges and thickets in this country. Flowers June to August.

Etymology.—The generic name is derived from the Celtic *Rhos* (from *rhodd*, red); the origin most probably of the Greek *ροδον*, and of the European synonyms of the plant. This species is called by Pliny, *Cynorrhodon*, from *κυνη*, a dog, *ροδον*, a rose; in allusion to the reputed effects of the root in curing the bite of a mad dog; hence the common English name. The shrub is also known by the name of Common Briar, and, in some parts, Canker Rose; and the fruit is termed *hips*, or *heps*.

The common Wild Rose is the Eglantine of some writers, although this appellation more correctly belongs to the sweet-briar. Chaucer has a word in praise of it:—

“As swete as is the bramble floure
That beareth the red hepe.”

Shakspeare mentions its flowers by the name of *canker-blooms*. He is certainly wrong in affirming that they yield “no odour after death;” the water distilled from them is esteemed by some superior to the common rose-water; and there are, perhaps, not a few who prefer the chaste and elegant fragrance of the Wild Rose, to the richer and heavier perfume of her courtly sister:—

“The Rose looks fair, but fairer we it deem
For that sweet odour which doth in it live.
The canker-blooms have full as deep a dye
As the perfumed tincture of the Roses,
Hang on such thorns, and play as wantonly,
When summers' breath their masked buds discloses,
But for their virtue only is their show,
They live unmoved, and unrespected fade;
Die to themselves;—sweet Roses do not so:—
Of their sweet deaths are sweetest odours made.”

Properties and Uses.—The petals of the Dog Rose, fresh gathered and distilled, afford a fragrant perfumed water. The dried leaves have been particularly recommended as a substitute for foreign tea. They impart to water by infusion a fine colour, a subastringent taste, and a slightly aromatic odour. Gleditsch states, that the green leaves of this and other species of Rose are useful in currying fine leather. The bark of the stems, according to Sieffert, imparts to wool a dark brown colour, which may be fixed by the usual methods; and on adding a solution of alum to the dye, it becomes of a fine blue colour. He observes, however, that these colours are almost destitute of lustre. The fruits, or hips, afford a pleasant confection, which is sometimes brought to table on the Continent, and is used as an ingredient in sauces. In the north of Europe the pulp, with the addition of sugar, is sometimes made into wine. The Russians of the Volga prepare a spirit from the flowers, by fermentation, and the fruit appears very suitable for this purpose. Gerard says that, when "ripe, the fruits "maketh most pleasant meats and banqueting dishes, as tarts and such like."

The odour of the recent flowers is agreeable and fragrant, and the taste bitterish, slightly astringent, and subacescent; which qualities are yielded to water by infusion. The succulent covering of the fruit is inodorous, and has a pleasant sweetish, acid taste. The slight astringent property appears to be owing to tannin. The carpels, popularly termed "seeds," are embedded in silky bristly hairs, which act as mechanical irritants like cowhage. A morbid excrescence of a bright greenish red colour, and generally of an ovate form, is found on the different parts of the shrub; it is produced by the puncture of an insect, and was called in the old pharmacopœias *bedegar* or *bedeguar*, and was celebrated for its astringent properties.

The uses of the root in hydrophobia, of the flowers in diseases of the eye, and of the carpels in nephritis and calculous complaints, originated from the belief in the doctrine of signatures rather than from any real virtues. The pulpy part of the fruit was at one period considered diuretic and laxative,

and was used in diarrhoea, dysentery, and other fluxes, and in dropsy. The only use to which the fruits are now put in this country is for making a kind of confection, used only in pharmacy.

CLV.

ROSA GALLICA, L. RED, FRENCH, OR PROVINS ROSE.

Nat. Ord. ROSACEÆ.

F. ROSE ROUGE, ROSE DE PROVINS. G. ESSIGROSE.

Description.—A low growing bush; stems branching, 3 to 4 feet high, armed with fine, dispersed, short, slightly hooked, reddish prickles. Leaves alternate, petiolate, winged, composed of 5 to 7 stiff elliptical or somewhat ovate leaflets, smooth, deep green above, paler, glaucous or whitish and downy beneath, glandular at the margin; nerves and petioles also glandular. Stipules linear-lanceolate, pointed, downy, and glandular. Flowers solitary, pedunculate, lateral, or terminal; peduncles elongated, more or less hispid, glandular. Calyx consists of a globose tube, and a limb with 5 downy, alternately pinnatifid segments. Corolla large, usually of an intense purplish red colour; petals slightly crenate, yellowish at the base. Stamens numerous, with subulate filaments and linear, incurved, yellow anthers. Ovaries numerous, ovate, supporting filiform villous styles, connivent below, terminated by capitate truncate stigmas. Fruit somewhat globose, nearly smooth, pale crimson. (Plate XXXVIII., fig. 4: (a) longitudinal section of the fruit, showing the carpels.)

Distribution.—Warmer parts of Europe, Central and Southern Russia, Greece, Asia Minor, Armenia, and the Caucasus. It is known in so many varieties, and has been so widely cultivated, and from so remote a period, that its distribution cannot be ascertained with exactness. It is cultivated in our gardens under an infinite variety of forms. Flowers June and July.

Etymology and History.—The Red Rose is named Gallica.

from its being considered a legitimate native of France; whereas most of the cultivated Roses may be traced to the East. It is styled by some of our old writers the English Rose; and a variety, long cultivated near Provins in France, is known as the Provins Rose.

It is quite unnecessary to say anything in praise of the Rose; in every land emphatically the flower of love and poetry; and signalized by almost every poet, ancient and modern. In the glowing fiction of the ancient mythology, the Rose was represented as originally white, but to have been changed in hue by the blood which streamed from the lacerated feet of Venus, when traversing the woods in despair for the loss of Adonis. According to Anacreon, it was dyed by the gods when first formed, and was sacred to Bacchus. The Rose was dedicated by Cupid to Harpocrates, the god of silence, to engage him to conceal the amours of Venus. Hence it became the emblem of silence, and to hold up this flower to any person in discourse was equivalent to a request for secrecy; and at entertainments it was customary to place a Rose above the table to signify that what was then spoken should be kept private; to this practice we owe the common expression, "under the Rose." The Romans introduced Roses, in common with other flowers, at the festive board, both to gratify the senses with their brilliant colours and grateful odours, and from some vague notion that their aroma prevented headache and the injurious effects of the wine; they were woven into chaplets for the brows, and sometimes crowned the brim of the goblet.

The Greeks and Romans were also accustomed to strew Roses upon the tombs of departed friends. Anacreon, in his fifty-third ode, tells us that this flower is peculiarly grateful to the dead, "*τοδε και νεκροῖς αμυνει*." This practice was considered of so much importance, that it was enjoined by codicils annexed to their wills, as appears by an inscription at Ravenna and another at Milan. In this country, in the time of Evelyn, it was the custom to plant Roses round the graves of lovers, and to strew the flowers upon the graves of friends.

The Rose must not be forgotten as the national emblem of

England; it is also rendered interesting from its connection with the armorial bearings of some of the most ancient and noble families of Europe. The Roman emperors appear first to have constituted it a symbol of honour, by allowing their distinguished generals to inscribe it upon their shields. A golden Rose has been considered a fit present from one sovereign to another: particularly when consecrated by the pope. Henry the Eighth received such a gift from Alexander the Sixth. In no country is the Rose more cherished and cultivated than in Persia, and nowhere is it found in greater plenty and profusion. The Eastern poets generally associate this flower with the nightingale, and represent the Rose as bursting forth from its bud at the song of her tuneful lover.

Chaucer has written much in praise of this charming flower, and has given us a *Romaunt of the Rose*, to which we must refer our readers. Spenser and Shakspeare have several beautiful allusions to the Rose, both in its infant and mature loveliness; and there is a fine simile in Tasso's *Gerusalemme Liberata* (canto xvi.). Milton has introduced it in his *Paradise Lost*, especially on two occasions, with exquisite effect.

Properties and Uses.—The petals are the only part used medicinally, and these are at the present time hardly admitted to possess any medicinal virtues. Their use, however, dates from a very remote period; Theophrastus not only referring to their uses, but also to the existence of several kinds. Many of the old writers considered Rose petals purgative, astringent, and tonic. Thus they have been especially recommended in chronic catarrhs, hæmoptysis, diarrhoea, leucorrhœa, etc. Great efficacy has been ascribed to it in pulmonary phthisis, ever since the time of Avicenna, who states that he cured several cases by prescribing as much of the conserve as the patient could take, every day. Mesue, Montana, Valeriola, Forestus, Riverius, Kruger, and others, bear testimony to the same effect. They all, however, combined it with milk or other nutritious substance; and sometimes, before a cure was effected, from twenty to thirty pounds of the conserve were consumed by the patient.

The essential oil, by virtue of its powerful aroma, acts promptly and vigorously upon the nervous system, and consequently upon the heart and brain. Hippocrates was not ignorant of its powers, and he recommends it in diseases of the uterus. The distilled water serves as a collyrium for the eyes, but it is generally combined with sulphate of zinc, or acetate of lead.

At the present time "an infusion of Red Rose petals, acidulated with sulphuric acid, and slightly sweetened, is a very common and agreeable vehicle for some other medicines. The confection made by beating up the petals with sugar is also in use."—*Pharmacographia*, p. 232.

This species of Rose is rather extensively cultivated in some parts of Holland, as well as in the neighbourhood of Hamburg and Nuremberg, and about Paris and Lyons. In this country it is cultivated in Oxfordshire and Derbyshire, but principally at Mitcham, where it is known as Damask Rose, a name which properly applies to *R. damascena*, Mill, the species largely cultivated in Turkey, for the production of the valuable oil known as *attar of roses*. The flowers are gathered before they are fully opened, and the petals removed, which are carefully and rapidly dried by artificial heat.

CLVI.

ROSMARINUS OFFICINALIS, L. ROSEMARY.

Nat. Ord. LABIATÆ.

F. ROMARIN. *G.* ROSMARIN.

Description.—An evergreen, shrubby plant, much branched, leafy and downy, 3 to 5 feet high. Leaves sessile, opposite, linear, firm, about an inch long, deep green and shining above, downy or whitish beneath, the margins revolute. Flowers axillary, in tufted, opposite cymes, with an ovate-concave, tomentose bract at the base of each pedicel. Calyx slightly pubescent, bilabiate, compressed at the summit; upper lip

emarginate, rather shorter, lower with two lobes. Corolla pale blue, variegated with purple and white, ringent, tube longer than the calyx; upper lip oblong, erect and bifid; lower lip spreading, with 3 unequal lobes; middle lobe large, concave, roundish, and crenulate at the margin. Stamens 2, filaments subulate, curved longer than the corolla, with a small recurved tooth near the base behind; anthers oblong, incumbent, bluish. Ovary 4-parted, green, obtuse, supporting a subulate recurved style as long as the stamens, terminated by an acute bifid stigma. Fruit of 4 achenes, situated at the bottom of the persistent calyx. (Plate XXXIX., fig. 3: (a) calyx; (b) corolla, opened to show the stamens; (c) pistil.)

Distribution.—Mediterranean region, from Spanish peninsula to Greece and Asia Minor. Cultivated in English gardens, and probably introduced before the Norman Conquest. Flowers April and May.

Etymology and History.—This plant appears to be the *λιβανωτις στεφανοματική* of Dioscorides, from *λιβανος*, frankincense, in allusion to its odour; and from *στεφανος*, a crown, because of its employment among plants used for garlands and chaplets; hence also one of its Latin names, *Herba Coronaria*. The generic name is a compound of *ros*, dew, and *marinus*, of the sea, in allusion to the locality of the plant and its greyish appearance. It is supposed to be the *ros* mentioned in the following lines of Virgil:—

“ Nam jejuna quidem clivosa glareæ ruris,
Vix humiles apibus casias roremque ministrat.”

Georg. ii. v. 212.

Rosemary is often introduced in the old erotic ballads, and in the lays and *fabliaux* of the Troubadours. On account of its aromatic and cephalic properties, it was considered by the ancients to refresh the memory and comfort the brain, and was called Herb of Remembrance and Forget-me-not: hence also its claim to represent fidelity in lovers, and its employment at weddings and funerals. It is not uncommon in some parts of England to put Rosemary in the coffin, and to distribute sprigs of it among the mourners, who throw it into the grave. Shakspeare refers to this practice:—

"Dry up your tears,
And stick your Rosemary on this fair corse."
Romeo and Juliet, act iv. sc. 4.

Gay also alludes to it in his *Shepherd's Week* :—

"To show their love, the neighbours far and near
Followed with wistful looks the damsel's bier.
Sprigged Rosemary the lads and lasses bore,
While dismally the parson walked before.
Upon her grave the Rosemary they threw,
The daisy, butter-flower, and endive blue."

"There's Rosemary for you, that's for remembrance; pray you, love, remember," says Ophelia in *Hamlet*; and Perdita, in the *Winter's Tale*, thus addresses Polixenes and Camillo:—

"Reverend sirs,
For you there's Rosemary and rue; these keep
Seeming and savour all the winter long;
Grace and remembrance be to you both."

Spenser calls it "refreshing Rosemary," "cheerful Rosemary," and Shenstone, in his *Schoolmistress*, has some pretty lines on its banishment from the gardens of the great.

Properties and Uses.—Rosemary is sometimes used on the Continent for flavouring hams, rice, etc. It is extensively employed in the preparation of various perfumes and cosmetics, especially the famous Hungary water. The plant has had the repute of greatly improving the flesh of sheep that feed on it. It has a grateful aromatic odour, approaching to that of the turpentine, and a warm, bitterish, aromatic taste. The young tops are more powerful than the flowers, but the latter have a more elegant odour.

Pliny ascribes numerous virtues to the Rosemary, and at various periods it has been referred to by the old physicians as possessing valuable medicinal properties. So much was it esteemed in the Middle Ages, that it was grown on the imperial farms by order of Charlemagne. It was also used as a condiment for salt meats. As a tonic it has been used in atony and debility, and it has been strongly recommended in nervous diseases, hysteria, apoplexy, asphixia, paralysis, and against the paroxysms of some intermittent fevers.

Externally, it has been employed in baths for paralysis and also as an ingredient in fomentations, to disperse indolent tumours and ecchymosis free from pain. Heister and Kuechler assert that they have witnessed excellent effects from the topical application of an infusion or decoction of this herb to scrofulous tumours of the neck. Applied dried in bags, it has been used to remove bruises, and against œdema. Infused in wine, and applied warm, it is said to stay mortification. Lastly, the spirit and essential oil have been not unfrequently had recourse to, applied by friction, to recall animation in paralytic limbs.

Rosemary tea is a favourite remedy with many country people as a stomachic. It is not an acknowledged medicinal plant at the present time; but the volatile oil is used as an external stimulant in liniments and in hair-restoring liquids, on account of its supposed power of promoting the growth of the hair. The flowering tops, as well as the dried leaves, are also found amongst the stock in trade of the herbalist.

"Rosemary is cultivated on a very small scale in English herb-gardens; and though a little oil has been occasionally distilled from it, English oil of Rosemary is an article practically unknown in commerce. That with which the market is supplied is produced in the South of France and on the contiguous coast of Italy. The plant which is plentifully found wild, is gathered in summer (not while in flower) and distilled, the operator being sometimes an itinerant herbalist who carries his copper alembic from place to place, erecting it where herbs are plentiful, and where a stream of water enables him to cool a condenser of primitive construction. Oil of Rosemary is also produced on a somewhat large scale in the island of Lesina, south of Spalato in Dalmatia, whence it is exported, by way of Trieste, even to France and Italy, to the extent of 300 to 350 quintals annually."—*Pharmacographia*, p. 439.

Two kinds of Rosemary oil are known in commerce, the best sort being that from the flowers, and the other that produced from the entire plant; the latter is that most generally used.

CLVII.

RUTA GRAVEOLENS, L. RUE.

Nat. Ord. RUTACEÆ.*F. RUE.**G. RAUTE.*

Description.—An evergreen shrubby plant, 2 to 3 feet high, with firm, cylindrical, bushy stems, covered with a rough greyish bark, but in the young branches, smooth and yellowish green. Leaves alternate, petiolate, doubly pinnate; surface slightly tomentose, punctured, smooth, glaucous or dark bluish green; leaflets rather thick, oblong, elongated, decurrent at the base, somewhat cuneiform, entire, or obscurely crenate at the margin, the terminal one obovate or cuneiform. Flowers in a terminal corymb, the terminal flowers only, which open first, having the full complement of petals and stamens, the rest have a 4-parted calyx, 4 petals, and 8 stamens. Calycine segments lanceolate, punctured, minutely crenulate, and spreading horizontally. Petals yellow, ovate, concave, spreading, slightly toothed or wrinkled at the extremity, attached by narrow claws. Stamens of the terminal flower 10; filaments subulate, tipped with ovate yellow anthers; they recline upon the petals, but one by one successively rise up and discharge upon the stigma and then return to their original position. Ovary large, ovate, punctured, deep green, with 4 crucial furrows, seated on a fleshy receptacle dotted with nectariferous pores, crowned with a short tetragonal style, and a truncate stigma. Fruit a subglobose 4 or 5 lobed capsule, bursting elastically at the summit of each lobe, and emitting several rough, angular, blackish, reniform seeds. (Plate XXXIX., fig. 4: (a) terminal flower from which the petals are detached, magnified; (b) fruit; (c) transverse section of the same.)

Distribution.—Mountainous and bleak situations in many parts of Europe. Cultivated in English gardens from a very early period. Flowers June to September.

Etymology.—The generic name *Ruta* is derived from the Greek *ρῦτη*, and that, it is said, from *ρῦω*, to set free, on

account of the efficacy of the plant in various diseases; but this is rather a forced derivation, and unsatisfactory as to the true root of the word. In Slavonic it was called Rutiza, and in Anglo-Saxon, Rude, Ruta, or Rutu. Rue is frequently mentioned by Hippocrates, Theophrastus, and Dioscorides, under the name of *πηγανον*; the latter does not describe it, but he compares the leaves of many other plants to the *folia rutæ*.

Gerard mentions Herb-grace, as one of the common names of this plant; and Shakspeare calls it Herb of Grace. Ophelia, in *Hamlet*, says to the Queen, "There's Rue for you, and here's some for me; we may call it Herb of Grace a Sundays:" referring to the great need her majesty had of absolution for her crimes. Greene, in his *Quip for an Upstart Courtier*, has this passage—"Some of them smiled, and said Rue was called Herb-grace, which though they scorned in their youth they might wear in their age, and that it was never too late to say *miserere*." The gardener in *Richard II.* says of the Queen:—

"Here did she drop a tear; here, in this place,
I'll set a bank of Rue, sour herb of grace:
Rue, even for ruth, here shortly shall be seen,
In the remembrance of a weeping queen."

He here plays upon the name, and represents Rue as the herb of remembrance, a title which belongs to the rosemary, as already observed.

Rue seems to have been used formerly in nosegays; for the clown in *All's Well that ends Well*, having said of the countess—"She was the sweet marjoram of the salad, or rather the Herb of Grace," Lefeu replies, "They are not salad herbs, you knave, they are nose-herbs;" upon which the clown remarks, "I am no great Nebuchadnezzar, sir, I have not much skill in grass;" thus punning upon the name of Grace.

Properties and Uses.—Rue has a strong, stimulant, disagreeable odour, and a hot, pungent, bitter, nauseous taste. The wild plant is said to possess these qualities in a greater degree than the cultivated kind. In the recent state, the leaves have sufficient acrimony to inflame and blister the

hands; but much of this property is lost in drying. Orfila found that the distilled water, and watery extract, given to animals in large doses, caused death after a long interval, by producing local irritation, and consequent inflammation. He also states that the essential oil, introduced into the veins, acts as a narcotic, and probably has the same effect when taken into the stomach.

The stimulant property of the plant is proved by the irritation it produces when bruised and applied to the skin, as already observed. By the ancients it was especially regarded as wielding powerful influence over the nervous system in general, and over the uterus in particular. It was celebrated even in the days of Pythagoras. Hippocrates designates it resolute, diuretic, and alexiterial. It was also considered a powerful protection against contagion. Other authors have considered it carminative, anti-spasmodic, and anthelmintic; and both in ancient and modern days it has been regarded a powerful emmenagogue.

Waller, in his *British Domestic Herbal*, says, "Externally the fresh leaves have been applied to the temples for headaches, and to relieve deep-seated pain. A decoction of it in wine, used as a gargle, is a good remedy for a scorbutic state of the gums and carious teeth."

Rue is not now official, but the oil is occasionally used as a rubefacient.

CLVIII.

CROCUS SATIVUS, L. SAFFRON, OR SAFFRON CROCUS.

Nat. Ord. IRIDACEÆ.*F.* SAFFRAN. *G.* SAFFRAN.

Description.—Root consists of several long descending fibres, proceeding from the base of a roundish subcompressed bulb, covered with a coarse, brown, reticulated cuticle or skin. Leaves proceed immediately from the bulb, enveloped below

in a thin membranous sheath, opening on one side; they are numerous, linear, acute, several inches long, somewhat curved towards the summit, deep green, with a longitudinal furrow, and a white central stripe. Flowers proceed from amongst the leaves upon a very short scape. Perianth large, purple or lilac coloured, and resembles a corolla, consisting of a long slender whitish tube, and a campanulate limb of 6 deep, ovate-elliptical segments. Stamens 3, erect, shorter than the corolla, tipped with sagittate pale yellow anthers. Ovary roundish, situated at the bottom of the tube; style long filiform; stigma trifid; each of the segments somewhat dilated upwards, incised or crenate at the end, drooping and protruding between the segments of the corolla, deep orange and fragrant. Capsule ovate, trigonal, 3-valved, 3-celled, containing many seeds. (Plate XL., fig. 1: (a) single petal and stamen; (b) style and stigma; (c) capsule; (d) transverse section of the same; (e) seed.)

Distribution.—Greece, Asia Minor, to which countries it is supposed to be indigenous, and perhaps also in Persia. It has, however, been so long under cultivation in the East, that its native country is doubtful. Its English localities are only in the vicinity of those places where it has been cultivated. Flowers October.

Etymology and History.—The Latin *Crocus*, the Greek κροκος, and the various synonyms in the modern languages, originate in the Arabic name of the plant, *Zahafran*, or *Sapharan*. Saffron was evidently familiar to Theophrastus, Dioscorides, Galen, and other writers of antiquity; it is one of the plants mentioned as growing in the garden described by Solomon (Canticles, iv. 14). Homer introduces it as one of the flowers that formed the couch of Jupiter and his consort; and he represents Aurora coming forth with her Saffron-coloured robe, to scatter light upon the earth. Virgil more than once repeats the line—

“Tithoni croceum linquens aurora cubile.”

Georg. i. v. 447 et *Æn.* iv. v. 585.

He also speaks of “Saffron-odours:”—

“Nonne vides, croceos ut Tmolus odores,
India mittit ebur, molles sua thura Sabæi?”

and mentions *Crocus* as one of the flowers on which bees love to feed :—

“Pascuntur et arbusta passim,
Et glaucas salices, cassiamque, crocumque rubentem.”

Tmolus was a mountain of Phrygia, celebrated for its Saffron, as was that which grew in Cilicia, on a mountain called Corycus. Pliny states, that the wine in which Saffron had been macerated, was used to sprinkle in theatres, on account of its fragrant odour. Lucretius adverts to this custom :—

“Et cum scena croco Cilici perfusa recens est.”

Some writers imagine that Saffron was an ingredient in the famous *nepenthes* of Homer. It was fabled that *Crocus*, a beautiful youth, being consumed with his passion for a maiden named *Smilax*, was changed by the gods into the plant which bears his name ; a metamorphosis which is commemorated by Ovid.

Cultivation.—Saffron was cultivated in Spain as early as 961 ; and it appears to have been brought into England in the time of Edward III., and introduced by a Sir Thomas Smith, to the neighbourhood of Walden, in Essex, which was hence called Saffron Walden. It was subsequently grown in other English counties, but at the early part of the present century very little English-grown Saffron was known in the market, and that little fetched a very high price. English-grown Saffron is now scarcely if at all known.

“In France the flowers are collected at the end of September or in the beginning of October. The stigmas are quickly taken out, and immediately dried on sieves over a gentle fire, to which they are exposed for only half an hour. According to Dumesnil, 7000 to 8000 flowers are required for yielding 500 grammes ($17\frac{1}{2}$ oz.) of fresh Saffron, which by drying is reduced to 100 grammes. Notwithstanding the high price of Saffron, its cultivation is by no means always profitable, from the many difficulties by which it is attended. Besides occasional injury from weather, the bulbs are often damaged by parasitic fungi, as stated by Duhamel in 1728 (*Mém. de l'Acad. des Sciences*, 1728, p. 100), and again by

Montagne in 1848 (*Etude micrographique de la maladie du Safran, connu sous le nom de tacon.*)—*Pharmacographia*, p. 605.

Though Saffron is produced very largely in some districts of Spain, the French product is now considered the best quality. It is also produced in Austria, in some districts of China, a little in Kashmir, and in "considerable quantity in Ghayn, an elevated mountain region separating Western Afghanistan from Persia."

Properties and Uses.—Saffron has a strong, penetrating, diffusive, tenacious odour, agreeable in the first instance, but soon fatiguing; a warm, pungent, aromatic and bitterish taste; and a rich, deep orange-red colour. It is much used in the south of Europe, and particularly in Spain, for colouring bread, cakes, rice, sauces, and other culinary articles. Confectioners use it for colouring or flavouring creams, conserves, liqueurs, ices, etc. Dyers employed it at one time to procure various shades of yellow, and painters add it to different varnishes. As a dye stuff, however, Saffron has now become obsolete, owing to the discovery of much less costly materials.

With regard to its medicinal uses, emanations from Saffron were reputed to act powerfully on the nervous system, causing pain in the head, vertigo, trembling, etc. Borel, Schenck, and others relate cases of coma, and even death, from sleeping in rooms containing considerable quantities of this substance. When taken into the stomach, it was asserted to act in the same manner upon the brain and nerves, producing paleness, headache, dimness of sight, and a kind of delirium, attended with fits of immoderate laughter. Boerhaave and Ettmuller state that it is capable of inducing alarming symptoms, and recommend it to be used with great caution, while they extol its remedial agency. Hippocrates recommended it for external application for pains and swelling, while Serapion, Galen, and others, advocated its use in dysentery, jaundice, and colic, as well as an emmenagogue, diaphoretic, etc. Various modern authorities, however, describe it as quite inert; and at the present time it is not valued for any medicinal virtue, but simply as a colouring agent for medicines as well as in cookery.

CLIX.

SALVIA OFFICINALIS, L. SAGE.

Nat. Ord. LABIATÆ.*F.* SAUGE. *G.* SALBEI.

Description.—Root perennial, long, fibrous. Stem erect, much branched, shrubby, nearly quadrangular, about 2 feet high; younger branches whitish and downy. Leaves opposite, ovate-lanceolate, or elliptical, thick, wrinkled above, reticulated with prominent nerves beneath, crenulate at the margin, deep dull green above, whitish beneath, sometimes tinged with purple; petioles shorter towards the top of the stem. Flowers united 3 or 4 together, in axillary, opposite whorls, with ovate, mucronate, caducous bracts at the base, forming a kind of lax terminal spike. Calyx campanulate, turbinate, striated, rather woolly, 2-lipped, upper lip 3-cleft, lower bifid, rather larger; segments acute, mucronate, often purplish. Corolla large, light bluish purple, ringent; tube subquadrangular, ventricose above; upper lip galeate, erect, emarginate; lower lip 3-lobed, middle lobe larger, obcordate, crenulate, emarginate. Stamens 2, filaments curved and affixed transversely by the middle, each to a short pedicel, with a fertile anther at one extremity, and an abortive one at the other; fertile anthers 1-celled, linear-oblong, and concealed in the upper lip. Ovary seated on a prominent purplish disk, deeply 4-lobed, greenish, obtuse, supporting a long, filiform, whitish, incurved style, and a bifid acute stigma. Fruit consists of 4 roundish achenes, enclosed in the calyx. (Plate XL., fig. 2: (a) calyx and pistil; (b) corolla, opened to show the stamen; (c) stamen, showing the filament, connective, and anthers; (d) fruit; (e) pistil.)

Distribution.—South of Europe, but widely distributed by cultivation. In this country it has been grown in gardens from an unknown period. Flowers June and July.

Etymology.—The generic name is derived from *salvere*, to be well, in reference to the medical properties of the plant.

Dioscorides describes it by the name of *ελελίσφακον*; and by some it is considered the *σφακελος* of Theophrastus.

Properties and Uses.—Sage has a strong aromatic, peculiar odour, which is most agreeable in the flowers, and a warm, aromatic, bitterish, and subastringent taste. Its use as a culinary herb is very familiar: its bitterness and aroma enabling the stomach to digest the fat and luscious meats and sauces with which it is associated. It has been said, that the Chinese are as fond of Sage as we are of their teas, and that the Dutch once carried on a profitable trade by exchanging one pound of Sage leaves for three of tea.

The plant is possessed of bitter and aromatic properties, hence it is considered stomachic, cordial, nervine and corroborant, facilitating digestion and accelerating the general circulation. It has been strongly recommended in apoplexy, paralysis, epilepsy, hysteria and convulsions of various kinds. It has also been used in gout, rheumatism, as a diaphoretic, and in intermittent fevers. Externally, in bags or in fomentations, it is a popular topical application for bruises, local cedema, tumours, and atonic swellings.

CLX.

ERYSIMUM ALLIARIA, L.

SAUCE-ALONE, OR JACK-BY-THE-HEDGE.

Nat. Ord. CRUCIFERÆ.

F. ALLIARE. *G.* LAUCHHEDERICH.

Description.—Root biennial, whitish, tapering, fibrous. Stem erect, simple, or slightly branched, cylindrical, smooth, obsoletely channelled, 2 or 3 feet high. Leaves alternate, petiolate, cordate, unequally toothed, sinuate at the margin, veiny, glabrous on both sides; those at the base of the stem more obtuse, reniform, and supported on longer petioles. Flowers small, on short peduncles, forming a terminal corymbose raceme. Calyx of 4 ovate-lanceolate, concave, connivent,

pale green sepals. Corolla cruciform, of 4 white obovate petals, with short erect claws. Stamens tetradynamous, with subulate filaments, supporting yellow, oblong, incumbent anthers; there is a gland between each pair of longer stamens and the calyx, and one surrounding the base of each shorter stamen. Ovary long, tetragonal, crowned with a capitate truncate stigma. Fruit a pod, or silique, nearly 2 inches long, slender, prismatic, with prominent nerves; 2-valved, 2-celled, containing many oblong, brown, shining seeds. (Plate XL, fig. 4: (a) entire flower, magnified; (b) calyx; (c) stamens and pistil; (d) transverse section of the pod; (e) pod or silique, natural size.)

Distribution.—Europe, Northern Africa, temperate and Western Asia to the Himalaya. Common in hedges and on the banks of ditches in most parts of England. Flowers May and June.

Etymology.—The generic name, *Erysimum*, is derived from *ερωω*, to cure, alluding to the reputed qualities of the plants which it designates. *Alliaria* is a derivative of *allium*, garlic, referring to the odour of the species; hence, also, the common name, Sauce-alone, and Garlic Treacle-mustard. Jack-by-the-hedge is another of its provincial synonyms.

Most modern authors place the plant in the genus *Sisymbrium*.

Properties and Uses.—It is eaten as a salad or pot-herb, and as an ingredient in sauces. Neil observes, that "when gathered as it approaches the flowering state, boiled separately, and then eaten to boiled mutton, it forms a most desirable pot-herb, and to any kind of salted meat an excellent green." In Wales it is used as a frying herb. According to Bautsch it is useful in tanning. From the Swedish experiments, it appears that cows and goats eat the foliage; but horses, swine, and sheep refuse it. When eaten by cows, it gives a strong alliaceous taste to the milk; and if eaten by poultry, it imparts to their flesh, and as some assert, even to their eggs, a disagreeable rank taste.

The ancients were profuse in their praises of the medicinal properties of this plant. Its antiscorbutic virtues have been

pointed out by Fabricius Hildanus, Camerarius, Chomel, and Boerhaave. It was recommended as a very powerful diuretic and diaphoretic, and as a deobstruent in asthmatic disorders; as also in colic, flatulencies, and nephritic complaints.

CLXI.

COCHLEARIA OFFICINALIS, L. SCURVY-GRASS.

Nat. Ord. CRUCIFERÆ.

F. COCHLEARIA. *G.* LÖFFELKRAUT.

Description.—Root annual, elongated, whitish, with numerous capillary fibres. Stems several, feeble, somewhat procumbent below, then erect, slightly branched, somewhat angular, glabrous, 6 or 8 inches high. Radical leaves numerous, cordate-reniform, obtuse, entire or angular, slightly concave, supported on long petioles; cauline ones smaller, ovate, spatulate, toothed, on short petioles; uppermost sessile, subincised, amplexicaul by their toothed bases; all glabrous and succulent. Flowers in clusters forming a terminal raceme. Calyx of 4 lax, ovate, obtuse, concave, deciduous sepals, white at the margin. Corolla cruciform, white, twice the size of the calyx. Stamens tetradynamous, filaments incurved, subulate, greenish, supporting yellow, oblong anthers; there are 4 minute green glands between the filaments. Ovary ovate, compressed, supporting a short persistent style and capitate stigma. Fruit a globose silicle or pouch, half as long as the pedicel, obscurely veined, with 2 thick ventricose valves, and 2 cells, containing 2 blackish brown seeds. (Plate XL, fig. 3: (a) entire flower, magnified; (b) stamens and pistil; (c) fruit or silicle.)

Distribution.—Arctic and sub-arctic shores, and Alps of Western Europe, Northern Asia, and North America. Abundant on the sea-shores and mountainous places in this country. Flowers May to August.

Etymology.—The generic name, from *cochlear*, a spoon.

refers to the shape of the leaves, which resemble the bowl of an old-fashioned spoon. Gerard says, this plant is also called in English, Spoonwort and Scruby-grass. Some imagine that it is the Telephium and Herba Britannica of the ancients.

Properties and Uses.—The fresh herb has a strong pungent odour when bruised, and a warm, bitter, acrid taste. It is sometimes eaten as a salad. In Iceland they make various dishes of it with acidulated milk, whey, or beer; they also prepare a pickle by placing it in layers with salt and various aromatics. It is said to impart to the flesh of animals that feed on it a disagreeable flavour.

With regard to its medicinal uses, Woodville in his *Medical Botany*, says, "We have testimony of its great use in scurvy, not only from physicians, but navigators, as Anson, Linschoten, Maartens, Egede, and others. And it has been justly noticed, that this plant grows most plentifully in those high altitudes, where the scurvy is most obnoxious. Forster found it in great abundance in the islands of the South Sea." Its use in this disease is also demonstrated by the observations of numerous other authors. Scurvy-grass has likewise been recommended as an antiseptic stimulant, diuretic and emmenagogue. To the list of diseases in which this plant has been used, we may also add those of chronic rheumatism, chronic pulmonary catarrh, and various skin diseases. Externally, the juice has been applied to atonic ulcers, aphthæ, and to ill-favoured eruptions; the leaves as a masticatory for swollen and scorbutic gums.

CLXII.

PRUNUS SPINOSA, L. SLOE, OR BLACKTHORN.

*Nat. Ord. ROSACEÆ.**F. PRUNIER SAUVAGE, PRUNELLER. G. SCHLEHEN-PFLAUME.*

Description.—Root woody, branched, and wide-spreading. Stem arborescent, 6 to 10 feet high, sending off crooked very spinous branches; bark when old purplish brown, ash-coloured or greyish on the young twigs. Leaves ovate-lanceolate or elliptic, cuneiform at the base, petiolate, minutely and sharply serrated, smooth, dark green above, slightly pubescent, convolute when young. Flowers mostly solitary on the young twigs, on short naked peduncles, and appear before the leaves. Calyx campanulate; limb divided into 5 ovate-oblong, rather concave, spreading segments, longer than the tube. Petals snow-white, ovate-elliptical, obtuse, spreading, inserted into the calyx by slender claws. Stamens numerous, with subulate, spreading, white filaments inserted into the calyx, tipped with ovate, didymous, orange-coloured anthers. Ovary ovate-globose, small, glabrous, supporting a slender style the length of the stamens, terminated by an orbicular stigma. Fruit a small drupe, subglobose, glabrous, dark purple, covered with bloom, containing an ovate, compressed, slightly furrowed nut, enclosing the oblong kernel. (Plate XLI, fig. 1: (a) entire flower, natural size.)

Distribution.—Europe. Frequent in hedges and coppices in this country. Flowers March and April.

Etymology.—The genus derives its name from the Greek *προυνη*, but its origin is unknown. The *προυνη αγρη* of Dioscorides appears identical with our Sloe. The specific name refers, of course, to the spines with which the branches are armed. Sloe, in Saxon *fla*, is called Blackthorn, to distinguish it from the whitethorn or hawthorn, which its blossoms somewhat resemble, though they appear earlier. Blackthorn appears to be rather a modern term, as it is not mentioned by Gerard. The bush is sometimes called provincially Scroggs. The call the fruit, or sloes, *prunelles*.

This plant is by modern authors considered a sub-species of *P. communis*, Huds.

Properties and Uses.—The wood, being hard and tough, is used for turnery-ware, teeth of rakes, and walking-sticks. The bark stripped off in spring, boiled in ley, affords a red dye; it is also useful, according to Bechstein, to prevent rottenness in cheese, and may be employed in tanning leather. The leaves were at one time largely used for adulterating tea.

The fruit, gathered when fully ripe, and mellowed by the first frosts, is made into a pleasant wine, especially if the stones are broken and the kernels mixed with the juice; it is also a useful addition to other wines, such as currant, raisin, and elderberry. In a less advanced stage, sloes have been used by fraudulent dealers to adulterate port wine, for which purpose they are well adapted on account of the astringency, slight acidity, and deep red colour they impart. The juice of the fruit makes a good marking-ink for linen or woollen cloth; and if sulphate of iron (green vitriol) be added, it becomes permanently black, affording, it is said, a good writing-ink superior to that made from galls, and an excellent dye for linens, etc. The leaves of the Blackthorn are eaten by horses, goats, and sheep, and the bark is relished by hares, deer, and some other quadrupeds. The bark is inodorous, has a bitterish and styptic taste, which it imparts to water and spirit. The recent flowers have a pleasant odour, and a slightly bitter taste, resembling that of bitter almonds. The pulp of the fruit is inodorous, and has an acid austere flavour, very harsh and ungrateful before it is mellowed by frosts.

The flowers, fruit, bark, and root have all been used in medicine. The flowers are laxative; anthelmintic, and antinephritic. Baubin and Hoffmann speak of them, infused in water, or whey, weak wine, or beer, as a popular laxative; and Lewis considers the infusion or syrup to be especially calculated for children. The fruit was employed for its styptic property in the time of Dioscorides. Dr. Cullen says he has often found sloes to constitute an agreeable and useful astringent. According to Coste, Willemet, and Nebelius, the bark is febrifuge, and from experiments made by them, proved

effective in the cure of intermittents. The leaves possess similar properties to the bark, but in a less degree. Lastly, the root, or rather bark of the root, has been advised in asthma. Externally, the infusion of the flowers has been considered a useful application to scabies, and the juice of the fruit is a popular remedy for staying hemorrhage from the nose; as also a strong decoction of the bark.

CLXIII.

RUMEX ACETOSA, L. SORREL.

Nat. Ord. POLYGONEE.

F. OSEILLE. G. SAUERAMPFER.

Description.—Root perennial, long, slender, branched, with numerous slender fibres. Stems erect, striated, leafy, smooth, generally of a purplish red hue, branched towards the top, 1 to 2 feet high. Leaves alternate, oblong-sagittate, smooth on both sides, undulated at the margin, bright green; lowermost petiolate, obtuse, with 2 lobes at the base turned backwards; upper smaller, sessile, acute; uppermost linear; the whole subtended by membranous, whitish, semitubular, scarious stipules. Flowers diœcious, in a long terminal naked raceme, composed of spurious whorls, each flower on a short drooping peduncle, with small concave amplexicaul bracts at the base. Male flowers have a calyx of 3 greenish, ovate, concave, spreading segments; a corolla of 3 ovate, obtuse, greenish petals; 6 stamens with short filaments and large erect double anthers. Female flowers have a calyx resembling the male, which is ultimately reflexed; 3 persistent petals, which enlarge from an ovate to an orbicular-cordate figure; and a smooth, somewhat triangular ovary, supporting 3 capillary spreading styles, terminated by fringed purplish stigmas. Fruit a pendulous, oblong-triangular, smooth, shining, reddish nut, enveloped by the enlarged, reticulate, purplish red petals, sometimes called valves, which at this period have a minute appendage or tubercle at

the base on the outer side, and a wavy margin closing on the nut. (Plate XLI., fig. 2, representing the male plant: (a) fructification of the female plant; (b) male flower, isolated; (c) stamen; (d) female flower, isolated; (e) fruit.)

Distribution.—North temperate and arctic zones. Abounds in meadows and pastures in this country. Flowers May to August.

Etymology.—The generic name is of doubtful origin; some derive it from *ruma* or *struma*, which the *lapathum* of the ancients was used to cure; others from *rumex*, a kind of spear, in allusion to the shape of the leaves; the latter derivation is the more probable, if it be correct that the *Oxalis* (from *οξύς*, sharp) of Dioscorides and Pliny refers to this plant, and indicates rather the spear-like shape of the leaves than their acid taste. *Acetosa* is evidently derived from *οξύς*, acid.

Properties and Uses.—The root has a reddish brown or yellowish colour, a bitterish, subastringent taste, and is destitute of odour. The fresh leaves are very acid, with a slight roughness and astringency.

Sorrel is much employed, especially on the Continent, for culinary purposes. The leaves are used in salads, and as an ingredient in broths and soups, and they form an excellent sauce for stewed lamb or veal. In some parts of Ireland they are eaten with fish and alkalescent food. Linneus mentions that Sorrel and angelica are the only plants used by the Laplanders as food, except berries. "They prepare with Sorrel a kind of acetated whey, which they call *juemomelke*, in the following manner: They fill a copper vessel with the leaves and pour over them a third part of water, which they boil to the consistence of a syrup; then adding a fresh quantity of leaves, they boil again, constantly stirring with a piece of wood, lest the substance should acquire a burnt taste; when the boiling, which generally occupies six or seven hours, is finished, they set aside the mass that it may cool; it is then mixed with reindeer milk, and preserved in wooden vessels, or in those made with the stomach (*ventriculo primo*) of the reindeer. This whey retains its grateful acid flavour for a long time, and is much relished both by young and old."

Dr. Clarke states that the inhabitants of Wermeland, on the confines of Sweden, make a kind of bread with the seeds alone in times of scarcity. The roots may be employed in tanning. The foliage of this plant, as of most others of the genus, is eaten by domestic cattle. It has been celebrated for its refrigerating and diuretic properties from the earliest ages. It has been used to lessen the general circulation, and to promote cutaneous transpiration. In some eruptions of the skin the leaves have been considered useful, eaten plentifully in salads. It is in the cure of scurvy that Sorrel has been most used, either alone or in combination with other anti-scorbutics, as is amply testified in the writings of Bartholinus, Boerhaave, Hunczousky, Faxe, and others. Externally, the bruised leaves have been applied to putrid ulcers, and a vinous decoction made from them has been used as a remedy for a scorbutic or flabby state of the gums.

CLXIV.

ARTEMISIA ABROTANUM, L. SOUTHERNWOOD.

Nat. Ord. COMPOSITE.*F.* AURONE DES JARDINS, GARDE-ROBE. *G.* EBERREIS.

Description.—Root perennial, woody, fibrous. Stem shrubby below, covered with a smooth brown bark, herbaceous and slightly woolly above, branched, leafy, 2 to 3 feet high. Leaves numerous, petiolate, light glaucous green, somewhat hoary or woolly, doubly pinnated, with elongated, linear, and capillary, obtuse, very entire segments, furrowed above, slightly concave beneath, those of the branches less divided and on longer petioles: the axils of all the leaves contain the rudiments of branches. Flowers small, roundish, greenish yellow, in terminal, slender, erect racemes. Involucre composed of several roundish, membranous, downy, imbricated scales. Florets of the circumference female, those of the centre or disk hermaphrodite. Corolla very small, tubular; filaments capillary and

short; anthers united, style (in the hermaphrodite flowers) tipped with a bifid reflexed stigma. Fruit a small dry pericarp, naked and solitary, destitute of pappus. (Plate XLI., fig. 3: (a) flowering top; (b) floret, magnified.)

Distribution.—Italy, France, Spain. Commonly cultivated in gardens in this country, and is perfectly hardy. Flowers in July, but it does not flower in this country.

Etymology.—The origin of the generic name has been already explained (See MUGWORT). The specific name is derived from *αβροτονον*, a plant mentioned by Dioscorides, Theophrastus, and Galen, supposed to refer to our Southernwood, but of which they have given no description. Southernwood is the *Abrotanum mas* of the old writers, while their *Abrotanum femina* is the modern *Santolina Chamæcyparissus*, or Lavender Cotton. To accord with the Greek term, it should be *Abrotonum*, not *Abrotanum*.

Properties and Uses.—The leaves and tops have a strong, fragrant, to most persons agreeable, odour, and a nauseous, penetrating, bitterish warm taste. An infusion or tea made with it is bitter and aromatic, but the decoctions are very nauseous. It is said to be obnoxious to various insects, and is put into wardrobes to drive away moths; hence one of the French names, Garde-robe. The odour of the plant was formerly reputed to drive away serpents, and its virtues in this respect are commemorated by Lucan. The branches are said to dye wood of a yellow colour.

Southernwood has had the reputation of possessing medicinal properties of considerable power, and was formerly in great repute as a stomachic, deobstruent, anthelmintic, and diuretic. It is a common domestic remedy for hysterics and worms, and is by some considered to promote the appetite. Externally, it has been used as a discutient and anodyne, and has also been recommended to promote the growth of the hair.

CLXV.

VERONICA OFFICINALIS, L. COMMON SPEEDWELL.

Nat. Ord. SCROPHULARINEÆ.*F. VERONIQUE. G. EHEENPREIE.*

Description.—Root perennial, filiform, jointed, creeping. Stems slender, cylindrical, firm, very downy, procumbent, rooting, ascending, usually branched from the base, 5 to 10 inches long. Leaves opposite, on very short petioles, broadly ovate, narrowed at the base, sometimes nearly round, serrated, or toothed at the margin, rough with pubescence. Flowers small, in erect, axillary, and terminal racemes; each flower supported on a short peduncle with a linear bract at the base. Calyx with 4 ovate-lanceolate, obtuse, hairy segments. Corolla rotate, pale purple, marked with deeper lines, of 4 deep, ovate, obtuse unequal segments, lowermost smaller than the rest. Stamens 2, erect, inserted into the tube, and a little longer than the corolla, with subulate filaments, and cordate, obtuse anthers. Ovary ovate, obtuse, compressed, pubescent, furrowed, glandular at the base, supporting a subulate, erect, purplish style as long as the stamens, terminated by a truncate stigma. Fruit an obovate, compressed capsule, deeply notched at the summit, somewhat pubescent and ciliated, 2-celled, 2-valved, containing several small, brownish seeds. (Plate XLI., fig. 4: (a) entire flower; (b) calyx and pistil; (c) capsule; (d) transverse section of the same; (e) seed, magnified.)

Distribution.—Europe, Siberia, Western Asia, to the Himalaya, Northern United States. On banks and in pastures in this country. Flowers May to July.

Etymology.—Common Speedwell appears to have been unknown to the earliest writers on plants; at least, it is not described by them. Its English synonyms are Male Speedwell, and Fluellin; it has also been called Paul's Betony, because Dodoneus and others supposed it to be the *Betonica* of Paulus Ægineta.

Properties and Uses.—Common Speedwell has been recom-

mended as a substitute for tea, to which it is certainly inferior in flavour, but it may be usefully combined with other plants of an aromatic kind, such as lavender, balm, marjoram, and woodruff. The eulogies of Hoffmann have caused it to be employed to some extent for this purpose, in Germany; and according to Linneus, it is used by the Swedish peasantry. The leaves of Germander Speedwell (*Veronica Chamædrys*) are, however, equal if not superior. In decoction with iron filings, the leaves yield a black dye, which may be used for staining leather, etc.

The plant is eaten by horses, cows, goats, and sheep, but refused by swine. The fresh leaves have a very feeble but rather grateful odour, which is lost in drying. To the taste they are almost insipid at first, but soon become rough and slightly bitter. In medicine the plant has been indiscriminately recommended in maladies which call for tonics and demulcents. By Hoffmann, who contributed greatly to establish its reputation, it was considered to be a cure for various diseases, particularly those affections of the chest arising from a collection of mucus, such as cough, asthma, and even in ulcerated lungs. Haller likewise attributes to it great power in catarrhal suffocations. It is also reputed to have been useful in dysentery, as well as in skin diseases, and at one time it was much in esteem in this country as a remedy for the gout, and was eagerly bought up at an exorbitant price, which led to its adulteration and hastened the downfall of its reputation.

CLXVI.

DAPHNE LAUREOLA, L. SPURGE-LAUREL.

Nat. Ord. THYMELÆÆ.

F. LAUREOLE. G. SEIDELBAST.

Description.—Root perennial, thick, woody, and pliant. Stem shrubby, erect, rather stout, tough, covered with a brownish ash-coloured bark, but little branched, naked below, leafy above, 2 to 4 feet high. Leaves evergreen, broadly lanceolate, thick, glabrous, dark shining green, arranged closely towards the summit of the stem. Flowers yellowish green, drooping in axillary racemes on long petioles, each accompanied by an ovate concave bract. Perianth single, funnel-shaped, pale yellowish green, deciduous, with a 4-cleft limb, separable into two laminae. Stamens included in 2 rows of 4 each, with very short filaments and 2-celled yellowish anthers. Ovary ovate, supporting a very short style, and an undivided capitate stigma. Fruit an ovate, bluish black drupe, with a succulent covering, resembling a berry, containing a hard nut, with a solitary pendulous seed. (Plate XLII, fig. 3: (a) perianth, opened to show the stamens; (b) pistil; (c) nut.)

Distribution.—Europe, from Belgium southwards, exclusive of Russia, Northern Africa, Western Asia. Not uncommon in this country in copses and hedge-banks. Flowers January to April.

Etymology.—The name Laureola has been given to this shrub, because its foliage has some resemblance to that of the laurus or laurel. Some have thought the Spurge-laurel to be the χαμαιδαφνη of Dioscorides and the κνιπρον of Theophrastus. Gerard says, "It is called of diuers Lawrell and Lowry."

Properties and Uses.—The Spurge-laurel flowers, leaves, bark, and fruit, especially the two latter, are nauseous and very acrid, scarcely perceptible to the taste at first, but soon affecting the tongue, palate, and fauces with a sensation of burning heat, which lasts for a considerable time. The berry,

Or rather the nut of the drupe, contains, as in the mezereon, an oily matter, on which its acrid and caustic properties appear to depend. Van Swieten, who tasted a little of this oil squeezed from the berries between his fingers, found it mild to the taste at first, but in a short time it produced inflammation of the fauces, and he was nearly suffocated. The bark contains a similar principle to that of mezereon. Notwithstanding that the berries are very poisonous, they are, however, the favourite food of some birds, particularly pheasants, but it is uncertain whether they do not reject the nut, and eat only the pulpy covering. The leaves, bark, and fruit of this plant are violent in their operation on the organic system of man, being more or less acrid, corrosive, excoriating, drastic, diaphoretic and, externally, rubefacient. The chief disease in which it has been employed is syphilis, but in these cases it has been known to be followed by violent and alarming symptoms. Waller, in his *British Domestic Herbal*, relates the case of a strong healthy man who suffered severely from partaking of a portion of Spurge-laurel bark, and whose case narrowly escaped terminating fatally.

The bark has been particularly spoken of as an effectual remedy in rheumatism. It is occasionally substituted for mezereon bark, which has been described under that head.

CLXVII.

HYPERICUM PERFORATUM, L. ST. JOHN'S WORT.

Nat. Ord. HYPERICINÆ.

F. MILLEPERTUIS. G. JOHANNISKRAUT.

Description.—Root perennial, ligneous, creeping, tufted, much branched, yellowish brown. Stems erect, 1 to 3 feet high, firm, glabrous, cylindrical, ridged between each joint by 2 opposite angles, continuations of the midrib of each leaf, which render the stem 2-edged. Leaves small, sessile, opposite, each pair crossing those immediately below, oblong or obovate-

Hypericum

lanceolate, rather obtuse, entire, glabrous, light green, with numerous pellucid dots; a small simple leafy branch proceeds from the axil of each lower leaf. Flowers in terminal leafy panicles, on dichotomous branches, with oblong, opposite bracts, at the base of each pedicel. Calyx of 5, lanceolate, acute, entire sepals, margined with black glandular dots. Petals 5, ovate, acute, bright yellow, entire at one margin, crenate at the other, glandular like the calyx. Stamens numerous, usually in 3 parcels, terminated by yellow, roundish, didymous anthers, each tipped with a dark purple dot or gland. Ovary superior, ovate, glabrous, supporting 3 diverging styles, terminated by simple, convex, crimson (occasionally whitish) stigmas. Capsule 3-sided, 3-celled, tipped with the permanent styles, and contains several small, oblong, shining, blackish brown seeds. (Plate XLII, fig. 1: (a) calyx; (b) petal; (c) stamen, natural size; (d) the same, magnified; (e) pistil; (f) capsule, subtended by the calyx; (g) transverse section of the same.)

Distribution.—Europe (Arctic), Northern Africa, Siberia, Western Asia to the Himalaya; introduced into the United States. Frequent in woods, thickets, and hedge-banks in this country. Flowers July to September.

Etymology and History.—The generic name is derived from *υπερικον*, a term employed by the ancient Greek writers to denote the St. John's Wort, or some similar plant. Dioscorides gives a short description of the *υπερικον*, but it is, as usual, vague and indefinite. The term is probably derived from *υπερ*, over, *ικον*, an apparition, in allusion to the reputed influence of the plant over mental delusions; hence, also, the old name *Fuga Dæmonum*. The common name, St. John's Wort, originated in the appearance of the blossoms about St. John's day.

The derivation of the name proves the superstitious notions that were formerly current respecting this plant. It was called *Fuga Dæmonum*, probably not because it was ever supposed capable of expelling demons, but on account of its beneficial effects in hypochondriasis and insanity. It has, however, obtained the popular character of a charm against

witchcraft and evil spirits. According to Pennant, it is customary in Wales to stick sprigs of St. John's Wort on every door on the eve of St. John's day. And Stowe informs us "that on the vigil of St. John the Baptist, every man's door being shadowed with green birch, long fennel, St. John's Wort, or pine, white lilies, and such like, garnished upon with garlands of beautiful flowers, had also lamps of glass, with oil burning in them all night." Formerly it was carried about by the people of Scotland as a preservative from enchantments and spells; and they fancy that the malignant influence which has produced ropy milk in their pails is dispelled by milking afresh upon this herb. The common people in France and Germany gather it with great ceremony on St. John's day, and keep it in their houses as a preservative against storms, thunder, and evil spirits; and the girls of Lower Saxony hang sprigs of this plant at the head of their bed on the eve of St. John's day. Harte refers to this custom, when, after enumerating certain flowers, he speaks of—

"That which on the Baptist's vigil sends
To nymphs and swains the vision of their friends."

Moreover, from the red juice of its capsules, considered a signature of human blood, and perhaps from the punctured appearance of the leaves, St. John's Wort has been in great repute as a remedy for wounds. In allusion to the leaves, it has been fancifully termed "the herb of war."

"Hypericon was there, the herb of war,
Pierced through with wounds, and seamed with many a scar."

The elegant author of Gondibert styles it—

"Balm of the warrior's wound, Hypericon."

Properties and Uses.—The plant has a slight aromatic odour, and when the leaves or flowers are rubbed between the fingers, rather a powerful lemonlike scent is evolved. To the taste it is bitterish, resinous, and somewhat astringent.

The only economical use to which this plant has been applied is that of a dye. The dried herb, boiled in alum-water communicates a yellow, or yellowish red colour to wool, silk, etc.

It is eaten by kine, goats, and sheep, but refused by horses and swine. Ancient writers on the *materia medica* attribute to the St. John's Wort a host of virtues; hence it has been used as a detersive, resolute, vulnerary, anthelmintic, diuretic, emmenagogue, etc. For pulmonary consumption, and ulcers of the lungs, it is mentioned by several celebrated physicians. Externally, it has been used as a vulnerary, and as an excitant in chronic rheumatism. The tops, combined with chamomile, have had a great reputation as emollient and anodyne fomentations.

CLXVIII.

DELPHINIUM STAPHISAGRIA, L. STAVESACRE.

Nat. Ord. RANUNCULACEÆ.

F. STAPHISAIGRE. G. STEPHANSKÖRNER.

Description.—A biennial herb. Stem erect, cylindrical, downy, slightly branched, tinged with purple, 3 to 4 feet high. Leaves large, alternate, glabrous, green, often spotted with brown, palmate with 5 to 9 deep, ovate-lanceolate lobes, gradually smaller towards the top of the stem, supported on long downy footstalks. Flowers light blue or purplish, in lax, terminal, spike-like racemes, each flower supported on a pedicel about twice as long as itself. Calyx petaloid, upper sepal extended behind into a long tubular spur. Corolla of 4 petals, placed in front of the sepals, 2 upper narrow, small, extended at the base into spurs like the sepal in which they are enclosed; 2 lower and outer whitish, rounded, and plaited at the margins. Filaments numerous, subulate, crowned with oblong yellow anthers. Ovaries 3, tapering, pointed, downy, with filiform styles terminated by simple stigmas. Capsules 3, ovate-oblong, tapering, pointed, 1-celled, 1-valved, containing several seeds, which are large, brown, angular, plano-convex at the back, keeled in front, and rough all over with excavated points. (Plate XLII., fig. 2: (a) corolla; (b) stamens.)

Distribution.—Italy, Greece, the Greek islands, Asia Minor, Mediterranean regions, Canary Islands. It was cultivated in England by Gerard in 1596. Flowers May to August.

Etymology.—The generic name is derived from *δελφιν*, a dolphin, on account of the fancied resemblance between the nectary of the flower and the figure of the dolphin. The description given by Dioscorides of his *σταφισαγρια* (from *σταφιδ*, a dried raisin, *αγρια*, wild, in allusion to the dry wrinkled seed; hence, also, the English name Stavesacre) agrees in most particulars with this plant. It is the *Staphis and Astaphis Agria* of Pliny. It has also been called *φθειροκοκκον*, *herba pedicularis*, or Lousewort, a synonym which is retained in most of the European languages.

Properties and Uses.—The seeds are the only part of this plant employed in medicine; they are rough, of a blackish grey colour, trigonal or tetragonal in form, and contain a yellowish substance of an oleaginous nature. They have a slightly disagreeable odour, and a bitter, acrid, and hot taste. Lassaigne and Feneulle have detected in the seeds of Stavesacre a peculiar alkaline principle, on which its active properties depend, and which they have named *delphine* or *delphinia*.

The ancients were well acquainted with the acrimonious qualities of Stavesacre, and placed it in the rank of the most baneful poisons. The experiments of Hillefeld and of Orfila upon dogs prove that the seeds, introduced into the stomach or applied to wounds, cause death, preceded by efforts to vomit, debility, trembling, immobility, and convulsions; after death, traces of inflammation are found in the stomach, enormous inflammatory swelling of the limb to which they have been applied, and sometimes sanguineous congestion in the lungs. The active principle, *delphinia*, even in small doses, is a violent poison, acting chiefly on the nervous system.

The seeds only of this plant have been used in medicine, and from time immemorial they have had a place in most of the European pharmacopœias. In their action (from the presence of *delphinia*) they are powerfully purgative and sialagogue. By the ancients they were used as a cathartic; and externally, they have been employed as a masacatory to

induce a plentiful secretion of saliva, and as an excitant or detergent in lotions, gargles, etc., as well as in itch and other skin diseases. Their greatest reputation, however, has been for destroying vermin in the head and other parts of the body, a use which was known to the very earliest writers, having been alluded to by Pliny and subsequent authors down even to our own day, the seeds being still employed for the destruction of the pediculi in the human subject, for which purpose they are either pulverized and dusted in the hair, or made into an ointment. They are also used for destroying similar insects which infest cattle.

They are imported from Trieste and the South of France, the plant being cultivated near Nismes, as well as in Italy, for commercial purposes.

CLXIX.

SEDUM ACRE, L. WALL STONECROP.

Nat. Ord. CRASSULACEÆ.

F. PETITE JOUBARBE, VERMICULAIRE. *G.* HAUSWURZ, MAUERPFEFTEL.

Description.—Root perennial, consisting of several slender descending fibres, proceeding from a slender creeping stock. Stems several, creeping at the base, somewhat branched, ascending, smooth, pale green, succulent, 2 to 4 inches long. Leaves alternate, nearly erect, short, ovate, obtuse, adnate-sessile, rather convex and gibbous beneath, prolonged at the base, very succulent and smooth, bright green, numerous, and closely imbricated on the barren shoots. Flowers in small terminal cymes, usually trifid. Calyx of 5 ovate-oblong obtuse sepals. Petals lanceolate, acuminate, spreading, keeled beneath, bright yellow. Stamens 10, with spreading subulate filaments crowned with reniform 2-celled anthers, bursting lengthwise. Ovaries 5, glabrous, conical, diverging, with a nectareous scale at the base of each, and taper into subulate styles tipped with simple stigmas. Fruit composed of 5 carpels or follicles.

opening when ripe by a longitudinal slit in front. Seeds attached to the margins of the suture in 2 rows. (Plate XLII., fig. 4: (a) calyx; (b) entire flower; (c) ovary, magnified; (d) fruit; (e) carpel, divided longitudinally to show the seeds.)

Distribution.—Europe, Northern Africa, Siberia. Common in this country on rocks, walls, and sandy places, especially near the sea. Flowers June and July.

Etymology.—The generic name is derived from *sedo*, to sit, alluding to the humble growth of the plants upon their native rocks. The pungent acrimony of this species has obtained for it the trivial name Acre, and the popular synonyms Biting Stone-crop and Wall Pepper. There is no doubt that this plant is intended by one or other of the species of *αιζων* enumerated by the ancient Greek writers.

Properties and Uses.—Stonecrop is inodorous, but in its recent state it has a warm, pungent, acrimonious taste. It has been used in various diseases, particularly dropsy, scurvy, intermittent fevers, epilepsy, and chorea. Below, a Swedish physician, gave it, boiled in milk or beer, in scurvy; and the latter decoction, associated with honey of roses and alum, he also used as a gargle for inflammation of the gums, and to cleanse ulcers which have supervened to scurvy; he also applied cataplasms of the boiled herb upon the joints to rectify that contraction of the limbs which sometimes takes place in scorbutic persons. Lange speaks of the expressed juice, mixed with wine, as being a popular remedy for intermittent fevers among the peasantry of his country; while other authors have recommended it in epilepsy and other diseases.

As an external remedial agent, the Stonecrop has been renowned from the earliest days of medicine. Galen is said to have used it, as a topical application, in fistula lachrymalis, and Dioscorides for indurated serofulous swellings. Marquet asserts, that he had found the juice or pulp very efficacious in the treatment of ulcers, both cancerous and syphilitic. The bruised plant, however, applied to the skin, excites vesication and redness, and if continued for a certain length of time will produce ulceration.

The acrid poisonous nature of the plant has been illustrated by experiments made by Orfila.

CLXX.

FRAGARIA VESCA, L. WILD STRAWBERRY.

Nat. Ord. ROSACEÆ.

F. FRAISIER. G. ERDEBEERE.

Description.—Root perennial, cylindrical, scaly, fibrous, sending out numerous creeping stolons, or runners, which throw out fibres from the base, and produce new plants. Stem herbaceous, erect, simple, pubescent, about 6 inches high. Leaves ternate, on long petioles, with 2 lanceolate acute stipules at the base; leaflets ovate, obtuse, inciso-serrate, smooth above, glaucous, nerved, and clothed with silky hairs beneath. Flowers axillary, solitary, on long drooping naked peduncles. Calyx 10-cleft, spreading; persistent, and at length reflexed; 5 of the segments ovate, mucronate; the alternate 5 lanceolate, acute exterior. Petals 5, white, roundish obovate, obtuse, repand, spreading, inserted into the calyx. Stamens numerous, with rather short subulate filaments inserted into the calyx, tipped with cordate erect anthers. Ovaries numerous, ovate, obtuse, aggregated on a roundish receptacle; styles rather thick, short, proceeding laterally from the ovaries, tipped with truncate stigmas. Fruit, commonly called a berry, roundish, obtuse, scarlet, rarely white, consisting of a fleshy succulent substance (the enlarged receptacle), upon the surface of which are scattered the pericarps or carpels (usually called seeds). Carpels small, shining, ovate, somewhat compressed, deciduous, containing a single pendulous seed. (Plate XLIII, fig. 1: (a) vertical section of a flower; (b) fruit, cut longitudinally; (c) pistil; (d) carpel, isolated.)

Distribution.—Europe (Arctic), Northern Africa, Siberia, Western Asia to the Himalaya, Eastern and Western North America. Abundant in shady places, in woods and thickets, in this country. Flowers April and May.

Etymology.—The generic name is derived from *frago*, to be fragrant, because of the sweet odour of the fruit; and the specific appellation from *vescus*, edible. The English name,

Strawberry, appears to be a corruption of *stray-berry*, so called in allusion to the trailing runners, which stray, as it were, in all directions, from the parent stock. John Lydgate (who died in 1483), in his poem called *London Lyckpenny*, writes the word *straberry*.

It is astonishing that so delicious a fruit as this should have been neglected by the ancients, for we can hardly suppose that it was unknown to them. Even Pliny scarcely mentions it, and Ovid and Virgil only speak of it as a wild fruit. The moderns, however, have amply atoned for this neglect. The Strawberry may be considered truly indigenous to Britain, and has been aptly termed by the poet "plant of my native soil." It was formerly cultivated in what is now the heart of London. According to Shakspeare, Gloster, when contemplating the death of Hastings, asked the Bishop of Ely for Strawberries:—

"My lord of Ely, when I was last in Holborn,
I saw good Strawberries in your garden there."

Many of the fine varieties of garden Strawberry are obtained from *F. vesca*; others from the Hautbois (*F. elatior*).

Properties and Uses.—We need scarcely mention the use of Strawberries for the dessert. They have this advantage over most other fruits, that they may be eaten to a great extent without producing injurious effects, and when taken alone, or with sugar, cream, wine, etc., they are equally pleasant and salutary. The fermented fruit yields an ardent spirit. Aken obtained from twelve gallons of fruits, one gallon and three pints of alcohol. In domestic economy, a grateful jam, wine, and vinegar are also obtained from this fruit. The foliage is eaten by sheep and goats, but is not relished by cows, and is refused by horses and swine.

The fruit of the Strawberry is mucilaginous, slightly acid, and saccharine, and when beaten into a pulp and dispersed in water, it forms an elegant beverage, which is both cooling and aperient. It contributes much to allay thirst, and is very suitable in acute and several chronic diseases, especially inflammatory, bilious, and putrid fevers, in the early stage of catarrh, etc.

Schutz, Hoffmann, Van Swieten, and others speak of their use in various diseases. The Strawberry is not infrequently made the principal article of nourishment by some gouty subjects, and Linneus asserts that he had warded off the excruciating attacks of arthritis by partaking plentifully of this fruit.

The root is slightly styptic, and when dried, bitterish. The leaves are herbaceous and slightly astringent. Both root and leaves have had the reputation of being aperitive, diuretic, and deobstruent. They were formerly employed in jaundice, diseases of the urinary passages, diarrhœas, and various organic obstructions. Nebel and others have recommended the application of the bruised herb to old ulcers.

CLXXI.

CICHORIUM INTYBUS, L. SUCCORY, OR CHICORY.

Nat. Ord. COMPOSITÆ.

F. CICHORÉE. *G.* CICHORIE, WEGWARTE.

Description.—Root perennial, long, fusiform, somewhat branched, fleshy, containing a milky juice. Stem erect, firm, tough, tapering, angular above, bristly, 1 to 3 feet high. Radical leaves numerous, spreading, long, petiolate, runcinate, rather rough; cauline one smoother, gradually smaller, sessile, semi-amplexicaul, lanceolate, toothed only towards the base, fringed with bristly aristate hairs. Flowers large, handsome, on very short peduncles, generally 2 or 3 together in the axils of the upper leaves of the stem and branches. Involucre consists of about 8 elongated, erect, parallel, linear, ciliated scales, surrounded at the base with 5 smaller and shorter ones. Corolla brilliant light blue, composed of numerous ligulate florets, truncate, and 5-toothed at the summit, containing 5 stamens, having the anthers united into a cylinder. Ovary conical, hairy, supporting a filiform style, tipped with a bifid, revolute, light blue stigma. Receptacle dotted, scattered with

a few obsolete chaffy hairs. Fruit obovate, angular, smooth, straw-coloured, crowned with a short scaly sessile pappus, and containing a single seed. (Plate XLIII., fig. 3: (a) hermaphrodite floret, natural size; (b) fruit, natural size; (c) the same, magnified.)

Distribution.—Europe, Northern Africa, Siberia, Northern and Western India. Introduced in North America. Common on road-sides and waste places in this country. Flowers July to October.

Etymology.—The generic name is derived from the Greek *κρυων*, and that from the Arabic *chikouryeh*. The specific name *Intybus* is also supposed to owe its origin to the Arabic *hendibeh*. Dioscorides mentions three species, but gives no description; Theophrastus is more explicit. Celsus calls the wild Succory *Ambubeia*.

When cultivated in rich soil, it becomes much larger in all its parts; and it gives rise to the varieties called in France Chicorée Frisée, Barbe de Capucin, and some others, which are produced by blanching.

Properties and Uses.—Chicory is applied to several useful purposes, both in rural and domestic economy. It has long been cultivated on the Continent as food for cattle. It is much relished by sheep, is reputed to increase the milk and flesh of cattle that feed upon it, and when thoroughly dried, is made into hay and is very nutritious. It is easy of cultivation in most kinds of soil, resisting dryness, cold and frost, and the heaviest rains; moreover, it grows fast, and supplies excellent fodder for cattle in the early spring. When cultivated in gardens and blanched, it becomes sweeter, more succulent, and is eaten in salads, or boiled as an addition to various dishes. The Egyptians cultivate this plant to a great extent, and make it one of their chief articles of food; and the ancient Greeks and Romans were not unacquainted with its culinary uses. Horace adverts to its edible qualities, and Juvenal and Virgil were evidently well acquainted with it. The latter, in his 1st Georgic, says, "*Amaris intuba fibris*."

The plant is largely cultivated in France, Belgium, and Germany, for the sake of its tap-root, which is employed to a

considerable extent, after being dried, roasted, and ground, as a substitute for, and for mixing with, coffee. It has been asserted that powdered root of roasted Succory is liable to spontaneous combustion when heaped together in large quantities, and Murray quotes an instance of its taking fire in a shop at Magdeburg, by which the whole of the merchandize, together with five contiguous houses, were destroyed. Lastly, the powder of the dried roots may be converted into bread.

The fresh root is inodorous and very bitter; the latter quality depending on a milky saponaceous juice which flows from the cortical part, and which is more abundant and more powerful in the wild plant; this should consequently be selected for medical use.

By virtue of its bitter principle, the root has had the reputation of strengthening the relaxed fibres of the stomach, promoting appetite, assisting digestion, and often facilitating cutaneous transpiration and pulmonary expectoration. Together with the leaves they have been considered very useful aperients, acting mildly and without irritation, tending rather to abate than to increase heat. The root appears to contain, in combination with its bitter milky juice, a slightly anodyne principle; hence it has been successfully given in jaundice, cachexia, hypochondriasis, melancholy, and hectic disorders. Various practitioners have recommended it in phthisis, and in inflammatory states of the throat and chest, and the powdered leaves have been recommended in skin diseases, gout, rheumatism, etc.

The flowers for a long period ranked among the *four cordial flowers*; and a water distilled from them, although inert, was much used in hemorrhages, inflammation, and other diseases of the eye. With more propriety the seeds formed one of the *lesser cold seeds*, and the large quantity of oil they contain renders them useful as a demulcent.

The syrups of Chicory and rhubarb combined have had the reputation of forming a good aperient for children.

CLXXII.

TANACETUM VULGARE, L. TANSY.

*Nat. Ord. COMPOSITÆ.**F. TANAISE. G. RAINFARN.*

Description.—Root perennial, long, creeping, fibrous. Stems erect, strong, angular, leafy, slightly branched towards the summit, smooth, often tinged with purple, 2 to 3 feet high. Leaves numerous, alternate, amplexicaul, bipinnatifid, with numerous deep, oblong, incised, and serrated segments; lowermost doubly pinnate, with trifid pinnæ, decurrent on the petiole as far as the next leaflet; the whole deep green, destitute of pubescence, but rough with excavated points, paler beneath. Flowers yellow, in a terminal flat corymb. Involucre hemispherical, composed of numerous imbricated, appressed, linear-lanceolate, acute scales, scariose at the summit. Florets of the ray, or circumference, few and inconspicuous, often wanting; they are ligulate, 3-toothed at the apex, and contain merely a pistil. Florets of the disk numerous, forming a convex surface, each perfect, tubular, 5-cleft, including 5 stamens with united anthers, an oblong, glabrous, naked ovary, supporting a setaceous style, and a bifid revolute stigma, rather longer than the corolla. Receptacle convex and naked. Fruit small, obovate, or oblong, angular, crowned with a 5-sided membranous pappus, and containing a single seed. (Plate XLIII., fig. 4: (a) florets of the circumference and disk, magnified.)

Distribution.—Europe (Arctic), Siberia, North-Western America. Introduced in the United States. In waste places in England, often naturalized, and is frequently grown in gardens. Flowers August and September.

Etymology.—The name Tanacetum is considered by Pliny to be derived from *Tannacus*, a synonym of Parthenius; others think it altered from *athanasia*.

Properties and Uses.—The leaves and flowers have a peculiar, strong, camphorous odour, not very disagreeable, and a warm, bitter, subacid, and aromatic taste; the latter are

rather more powerful and agreeable. These properties are not much impaired by desiccation. The seeds have a strong fragrant odour. The young leaves of Tansy are shredded down and employed to give colour and flavour to puddings, and as an ingredient in omelets and cakes; they have also been mentioned as a substitute for hops. According to Withering, meat rubbed with this herb is effectually preserved from the attacks of the flesh-fly; it is likewise reputed to drive away bugs from a bed in which it is laid. The Finlanders prepare with the expressed juice of the shoots a green colouring matter, which they use to dye their clothes. The foliage is eaten by cows and sheep, but refused by horses, goats, and swine. The leaves, flowers, and seeds of the Tansy have been considered eminently tonic and stimulant, consequently stomachic, carminative, vermifuge, sudorific, emmenagogue, and antispasmodic. They have been used in intermittent fevers, as well as in dropsy, as a substitute for wormwood. The seeds have had the reputation of being powerfully vermifuge.

In the days of Gerard it was a common custom, in the spring season, to make cakes of the young leaves and eggs; and these were eaten with the notion that they purged the body of its foul humours: so at the period Miller wrote, "the good wives" are reported to have made a syrup with the juice, for the laudable purpose of preventing miscarriage. The flowers were formerly used as an anthelmintic, and in the dose of a drachm in powder, were given with success in hysteria.

Tansy has been applied externally in various forms, and for various purposes,—as for scurf, tetters, and other diseases of the skin, for sprains, contusions, and in the like; and was also considered useful in anodyne fomentations, combined with chamomile flowers, feverfew, etc. Linneus states that the Lapland women use it, in the form of baths, to facilitate parturition.

CLXXIII.

CARDUUS MARIANUS, Gaertn.

LADY'S THISTLE, OR MILK THISTLE.

Nat. Ord. COMPOSITEÆ.*F.* CHARDON-MARIE. *G.* MARIENDISTEL.

Description.—Root biennial, long, cylindrical, thick, fibrous. Stem erect, firm, striated, branched, downy, naked above, 1 to 4 feet high. Leaves alternate, large, sinuated, spiny, marbled on the upper side with white veins; radical ones pinnatifid, 1 foot or more long, spreading on the ground; those of the stem sessile, amplexicaul, spreading, ovate-lanceolate. Flowers solitary at the summit of the branches, large purple. Involucre of numerous imbricated recurved scales, spinous at the margin and end; lowermost roundish, edged with spines, smaller than those above, which are concave, channelled, recurved, and produced at the summit into a spreading concave leaflet, tapering into a rigid straight spine; upper and innermost lanceolate, ciliated, and destitute of spines. Florets perfect, funnel-shaped, with a whitish curved tube, and an erect limb of 5 equal linear segments, globose at the base and nectariferous. Filaments very short and slender, supporting purplish anthers, united into a tube. Ovary ovate, compressed, whitish, surmounted by a filiform style, longer than the stamens, slightly hairy above, terminated by a bifid stigma. Receptacle pilose with flat glabrous hairs. Fruit oblong, transversely wrinkled, angular, blackish or mottled, shining, crowned with a simple, subulate, rigid, somewhat oblique pappus. (Plate XLIV., fig. 1: (a) floret; (b) fruit, crowned with the pappus.)

Distribution.—Europe, from Holland, southwards. In waste places and near gardens in this country, but is not indigenous. Flowers July to September.

Etymology.—According to Théis, the generic name is derived from the Celtic *ard* (whence also the Greek *αρδύς*; the Latin *arduus* and *cardo*; and the English *cardinal*), a

point, in reference to the spiny leaves. The specific name has been given in accordance with the idea formerly cherished, that the white veins on the leaves were caused by a drop of the Virgin Mary's milk; hence, also, the English terms Lady's Thistle, *i.e.*, our Lady's Thistle, and Milk Thistle. It is generally supposed, that the *σάλυβον* mentioned by Dioscorides is identical with this plant.

It is considered by some the emblem of Scotland, and as such is designated by the poet—

“Proud thistle; emblem dear to Scotland's sons,
Begirt with threatening points, strong in defence,
Unwilling to assault.”

There is, however, this objection to its being considered a national emblem,—*viz.*, that it is rare in Scotland.

Properties and Uses.—The fruit, which is commonly called the seed, is covered with a smooth epidermis, and contains a bitterish oily seed. The leaves are inodorous, and have an herbaceous, bitterish taste, when masticated, tinging the saliva green. The root is esculent in the spring of the second year, like salsafy, and the young tender leaves are eaten in salads, or boiled as greens. The tender stalks, peeled and soaked in water to extract their bitterness, are said to furnish an excellent dish, and the receptacle of the flower may be used as a substitute for artichokes. In some parts of France it is known as wild artichoke. Rabbits are very fond of the leaves. In Apulia the whole plant is used as a fodder for cattle. The seeds are the favourite food of goldfinches.

The properties attributed to this plant are tonic, deobstruent, sudorific, and diuretic. Ettmuller and Geoffroy highly extol the effects of the seeds in pleurisy, catarrh, and rheumatic pains of the chest. A still more potent quality, ascribed to them by Lindanus, is that of curing hydrophobia by virtue of their sudorific effects; for this purpose, he recommends 1 or 2 drachms of the powdered seeds in wine. Matthioli asserts that a decoction of the leaves and root is useful in dropsy, jaundice, and nephritis; and, according to Tournefort, the expressed juice of the leaves is febrifuge in the dose of 4 ounces, given at the commencement of the paroxysm of intermittents.

Externally, the decoction of the plant and the bruised leaves have been esteemed useful applications to ulcers, etc., and are reputed to have proved serviceable in cancer.

The original authors of this work considered the true character of this Thistle to be that of a slight tonic, stomachic, and diaphoretic.

CLXXIV.

DATURA STRAMONIUM, L. THORN-APPLE.

Nat. Ord. SOLANACEÆ.

F. STRAMOINE. *G.* STECHAPPEL.

Description.—Root annual, woody, branched, whitish, fibrous. Stem herbaceous, thick, cylindrical, fistular, smooth, pale shining green, simple below, dichotomously branched above, 1 to 2 feet high. Leaves alternate, large, spreading, unequal, petiolate, somewhat succulent, ovate-triangular, acute, glabrous, angled and sinuate at the margin, dark lurid green above, paler beneath, marked with strong branching veins. Flowers large, solitary, axillary, on short erect peduncles. Calyx long, tubular, pale green, acutely pentangular, 5-toothed at the summit, with ovate, acute, erect, keeled segments. Corolla white, funnel-shaped; tube cylindrical, greenish white, longer than the calyx, gradually expanding into a pentagonal, 5-cleft, plaited limb; segments roundish, shallow, tapering into a subulate apex. Stamens 5, with linear-subulate, erect filaments, shorter than the corolla, inserted in the tube, tipped with erect, ovate-linear, brownish, compressed anthers, which open longitudinally. Ovary superior, ovate-pyramidal, obtuse, hispid, supporting a white cylindrical style as long as the stamens, crowned with a clavate, obtuse, bilobed stigma. Fruit an oval, erect capsule, armed with numerous, nearly equal, strong, pungent spines, and subtended at the base by the remains of the calyx; it has a fleshy exterior, and is internally divided at the lower part into 4 cells, but

2 only of the dissepiments reach the top, opening by 4 valves, and containing many reniform, compressed, blackish, punctured seeds, which are attached to thick, salient, dotted placentæ. (Plate XLIII, fig. 4: (a) corolla, opened to show the stamens; (b) pistil; (c) horizontal section of the fruit; (d) seed magnified.)

Distribution.—Nearly all the temperate and warmer regions of the globe, occurring as a weed of cultivation, in which condition it is found in waste ground, chiefly near gardens in the south of England. Flowers July and August. The opinion of Alphonse De Candolle, who may be considered an authority, is that this plant is a native of the Old World, in all probability of the borders of the Caspian Sea or the neighbouring regions: he considers it very doubtful whether it existed in Europe at the period of the ancient Roman Empire, but supposes it to have spread between that time and the period of the discovery of America. The seeds were brought to this country from Constantinople by Lord Edward Zouch, and given to Gerard, who raised plants from them, about the year 1590.

Etymology.—The generic name is derived from the Arabic *Datura*, or *Tâtôrah*; while *Stramonium* is a corruption of *στυγνομανικον*, supposed to designate this plant in the writings of Dioscorides. The common name, Thorn-apple, obviously refers to the spiny fruit. It is called in the United States, Apple of Peru, Devil's Apple, and Jamestown-weed.

The *Stramonium* is commonly associated with witchcraft, poisoning, and death. Harte, speaking of the plants growing around the palace of Death, says—

“Nor were the nightshades wanting, nor the power
Of Thorned *Stramonium*, nor the sickly flower
Of cloying mandrakes, the deceitful root
Of the monk's fraudulent cowl, and Plinian fruit.”

Properties and Uses.—The plant has a disagreeable narcotic odour, which has been compared to that of bean meal, and is more developed when the leaves are rubbed between the fingers. Bergius, after being for some time exposed to the odour of the recent plant, and from chewing one of the leaves,

experienced a kind of intoxication like that produced by the fumes of tobacco. The foliage is bitter to the taste, less nauseous when chewed, and tinges the saliva of a deep green colour.

The ancients can scarcely be said to have used the *Stramonium* medicinally; indeed, its deleterious properties have been a formidable barrier to its employment. It has been reserved for the physicians of the last century to discover its medicinal value. Störck was the first to institute experiments on the therapeutical action of this plant in mania, epilepsy, and convulsions, in some of which cases it proved beneficial. Greding and others have made numerous trials of it in these affections, and, although in some cases it disappointed their expectations, in others it produced the most salutary effects. Bergius strongly recommends it for similar diseases. Some of the American physicians, in the early part of the present century, speak highly of its virtues in various diseases as epilepsy, sciatica, tic-douloureux, chronic rheumatism, etc.

As an external application, the foliage of this plant has its advocates. It has been applied, in the form of decoction or cataplasm, to chancres and cancer, burns, etc. Gerard seems entitled to the discovery of its utility for the latter purpose. He says, "The juice of Thorn-apple, boiled with hogs-grease to the form of an vnguent or salve, cures all inflammations whatsoever, all manner of burnings or scaldings, as well of fire, water, boiling lead, gunpowder, as that which comes by lightning, and that in very short time, as my selfe have found by my daily practice to my great credit and profit."

The Thorn-apple has attracted much attention, both in this country and in America, as an efficacious palliative in asthma and some other affections of the lungs, by inhaling the fumes or smoking the plant in the same manner as tobacco. At the present time it is employed in medicine almost solely for the above purpose. From the seeds, however, an extract or tincture is made which is administered as a sedative or narcotic. The root of Thorn-apple is given by the native practitioners in the Carnatic in violent headaches.

With regard to the poisonous properties of the plant, Orfila

found that half an ounce of the extract killed a dog within twenty-four hours after being swallowed; that a quarter of an ounce applied to a wound killed another in six hours; and that thirty grains killed another when injected into the jugular vein. The symptoms were purely nervous, and not very prominent. Orfila concludes, that, like belladonna, it acts through the blood-vessels, and probably on the brain.

The following case of poisoning in the human subject is recorded by Christison: "A child two years old swallowed about 100 seeds, without chewing them. Soon after, she became fretful, and like a person intoxicated; in the course of an hour, efforts to vomit ensued, together with flushed face, dilated pupils, incoherent talking, and afterwards wild spectral illusions and furious delirium. In two hours and a half she lost her voice and the power of swallowing, evidently owing to spasms of the throat. Then croupy breathing and complete coma set in, with violent spasmodic agitation of the limbs, occasional tetanic convulsions, warm perspiration, and yet an imperceptible pulse. Subsequently, the pulse became extremely rapid, the belly tympanitic, and the bladder paralysed, but with frequent involuntary stools, probably owing to the administration of cathartics; and death took place in twenty-four hours. It is remarkable that no seeds were found in the intestinal canal after death." Another case of the poisoning of a family of five persons, who had eaten a quantity of the leaves, boiled in mistake for greens, is reported from America. The author of the account says: "I saw the family about an hour after dinner; the countenances had a wild idiotic expression, the pupils widely dilated, the sensorial functions perverted, and the muscular system subject to an irregular agitation. The appearance of the family was extremely ludicrous. The children were laughing, crying, singing, dancing, and playing all imaginable antic pranks. They had no correct estimation of distance or the size of objects,—were reaching their hands to catch hold of things across the room, and again running against persons and things which they appeared to view as distant. The nail-heads in the floor were pieces of money which they eagerly tried to pick up. A boy, apparently

fancying himself undressed, caught a hat belonging to a student, thrust his foot into it, pulled with both hands on the brim, and began to fret that he could not get into it. The parents frequently called on the children to behave themselves, but their own actions being equally eccentric, they afforded a ridiculous exhibition of family government. Sulphate of zinc, with ipecacuanha, brought from the stomach a large quantity of the herb, and under the use of camphor, carbonate of ammonia, and a warm aromatic infusion, the symptoms soon subsided."

CLXXV.

THYMUS SERPYLLUM, L. WILD THYME.

Nat. Ord. LAIBATE.

F. SERPOLET. *G.* QUENDEL.

Description.—Root perennial, slender, hard, ligneous, fibrous. Stems numerous, decumbent, branched, hard, roundish, minutely pubescent, 4 inches to a foot high; branches opposite, ascending, slender, tetragonal, brownish red. Leaves opposite, shortly petiolate, plane, ovate, obovate, or ovate-lanceolate, obtuse, entire, dotted, whitish beneath, margin more or less ciliated at the base. Flowers in small capitate spurious whorls, subtended by four bracts; each flower on a short pedicel. Calyx tubular, marked with 10 ribs, villous, purplish, 2-lipped, upper lip plane, 3-toothed, lower bifid, with subulate, ciliated segments. Corolla pale reddish purple, bilabiate; tube cylindrical, as long as the calyx; upper lip erect, oblong, nearly plane, notched; lower spreading, trifid, with ovate obtuse segments. Stamens 4, distant, sometimes rather longer than the corolla, with erect subulate filaments inserted in the tube, tipped with small, cordate, purple anthers. Ovary ovate, 4-lobed, supporting a subulate style, terminated by a bifid acute stigma. Fruit consists of 4 minute nutlets, situated at the bottom of the persistent calyx, the tube of which is clothed with hairs at

the period of maturation. (Plate XLIV., fig. 2: (a) calyx, natural size; (b) corolla; (c) entire flower, magnified.)

Distribution.—Europe (Arctic), Siberia, Dahuria, Western Asia to the Western Himalaya, Greenland. Introduced in North America. Abundant on hills, heaths, and dry grassy places in this country. Flowers June to August.

Etymology.—The generic name is derived from *θυμος*, strength, the plants to which it refers being supposed, from their aromatic properties, to strengthen the animal spirits. *Serpyllum*, from *ερπυλλον*, and that from *ερω*, to creep, refers to the procumbent habit of the plant. It is doubtful whether this is the plant intended by Dioscorides. It is probably referred to by Virgil, both as *Thymus* and *Serpyllum*. Wild Thyme is sometimes called, provincially, Mother of Thyme, Pulial Mountain, and Creeping Thyme. Wild Thyme is subject to many varieties, distinguished by their habits, as well as by the colour and size of the flowers, etc.

Properties and Uses.—The leaves, infused in boiling water, have been proposed as a substitute for tea. The foliage is eaten by sheep and goats, but refused by swine. It has been asserted that this and other aromatic herbs impart an agreeable flavour to the flesh of sheep that feed upon them; but it is well known that sheep only crop these plants occasionally, or when there is a deficiency of other pasturage. The truth is, that the situation favourable to aromatic plants produces a short sweet herbage, best adapted for those animals. Bees are extremely fond of the flowers. The odour of the plant is sweet, fragrant, and agreeable; the taste bitter, camphorous, and aromatic. It yields its virtues both to water and spirit.

Wild Thyme has the aromatic, tonic, stomachic, diuretic, and resolute properties common to many labiate plants; in addition to which it has been considered emmenagogue, antispasmodic, and cephalic. Its effects have been extolled in the flatulent and abdominal pains, which so often disturb nervous and melancholic subjects; also in hysteria, nervous headaches, giddiness, etc. Linneus speaks of it as well adapted for relieving the headache which follows inebriation. What has been said in our former pages of rosemary, balm, and others

of the same natural family, will apply equally well to this plant. As a topical application, it has been recommended for swellings, nervous disorders, and for some chronic disorders of the skin.

CLXXVI.

LINARIA VULGARIS, Mill. TOAD-FLAX.

Nat. Ord. SCROPHULARINÆ.

F. LINAIRE. G. GEMEINER FRAUENFLACHS.

Description.—Root perennial, woody, tortuous, creeping, whitish, fibrous. Stem erect, cylindrical, glandular, light green, tough, leafy above, simple, or slightly branched towards the summit, 1 to 3 feet high. Leaves sessile, erectly spreading, numerous, scattered, crowded towards the summit of the stem, linear-lanceolate, acute, entire, somewhat revolute at the margin, pale glaucous green. Flowers in a terminal erect raceme; each flower on a short peduncle, with a linear, acute, reflexed bract at the base. Calyx monophyllous, glabrous, 5-parted, with ovate oblong, acute, erect segments. Corolla large, pale yellow, with an ample ventricose tube, terminating at the base in a conical-subulate spur; limb bilabiate, ringent, upper lip erect, bifid, with the segments rounded, reflexed at the margin; lower lip 3-lobed, the side lobes spreading, somewhat concave, middle lobe much smaller, nearly round; palate fornicate, prominent, saffron coloured, clothed with silky hairs. Stamens 4, furnished with whitish subulate filaments, the 2 longer attached to the lower lip, clavate and villous at the base; anthers oval, yellow, connivent by their parietes. Ovary ovate, subcompressed, glabrous, with a subulate style as long as the shorter stamens, terminated by a capitate truncated stigma. Fruit an ovate-oblong, emarginate, 2-celled capsule opening at the end, subtended by the persistent calyx. Seeds numerous, orbicular, brownish black. (Plate XLIV., fig. 4: (a) entire flower, viewed sidewise; (b) calyx; (c) longitudinal

section of the corolla, showing the stamens and pistil; (d) pistil; (e) capsule; (f) transverse section of the same.)

Distribution.—Europe (Arctic), excl. Turkey, Siberia, Dahuria. Introduced in North America. Waste ground in some parts of England and Scotland; rarer in Ireland. Flowers July to October.

Etymology.—The generic name is derived from *linum*, flax, the leaves of the species here described resembling those of flax. In consequence of this similarity, and from a fancied resemblance between the mouth of the flower and that of the toad, it has also received its common name. It is sometimes called, provincially, Butter and Eggs. A singular variety of this plant, the *Peloria*, with five spurs and five stamens to each flower, is occasionally to be met with. Toad-flax is a troublesome weed in sandy pastures.

Properties and Uses.—The foliage is refused by horses, cows, and swine, and is seldom touched by sheep or goats. According to Dambourney, the fresh herb when in blossom imparts an olive colour to woollen cloth and silk. Linneus states that an infusion of the plant in milk is used in Smoland to destroy flies. The Toad-flax has a faint disagreeable smell, somewhat resembling that of dwarf Elder, when the plant is rubbed between the fingers; to the taste it is bitterish, subsaline, herbaceous, and ungrateful. It is generally allowed by the older writers to be a powerful diuretic, cathartic, and deobstruent; hence it has been employed to carry off the water of dropsies, to remove obstructions of the liver or mesenteric glands, obstinate hypochondria, and in some affections of the kidneys and bladder. It has never been used in regular practice, but is a well-known rustic medicine. Waller says, "The country people boil the whole plant in ale, and drink the decoction; some use the expressed juice, which operates more powerfully still, and produces a copious flow of urine."

Toad-flax has, perhaps, enjoyed most reputation as an external remedy, in which character it is said to be anodyne and repellent. It has been principally used in the forms of ointment cataplasm, or fomentations. The expressed juice is

bruised leaves have been described as a useful application to foul ulcers, and the former for removing blotches on the face; the distilled water for inflammation of the eyes; and an infusion of the flowers, used as tea, for cutaneous disorders.

CLXXVII.

POTENTILLA TORMENTILLA, Sib. TORMENTIL.

Nat. Ord. ROSACEÆ.

F. TORMENTILLE. G. TORMENTILL, BLUTWURZ-GÄNSERICH.

Description.—Root perennial, thick, roundish, irregular, knobbed, woody, fibrous, dark brown externally, reddish within. Stems numerous, ascending, sometimes procumbent, round, slender, wiry, slightly hairy, branched and dichotomous above, 6 to 10 inches high. Leaves alternate, amplexicaul, nearly sessile, of 3 leaflets (towards the base of 5), which are lanceolate-elliptical, or somewhat rhomboid, deeply serrated, slightly pubescent, bright green above, paler beneath, with 2 deeply cut stipules at the base. Flowers axillary and lateral, solitary and erect, on long, filiform, naked peduncles. Calyx usually 8-cleft; segments ovate, acute, spreading, alternately smaller; 4 outer narrower and accessory. Petals commonly 4, golden yellow, obcordate, emarginate, attached by short claws to the rim of the calyx. Stamens numerous, with yellow capillary filaments inserted into the calyx, not half the length of the petals, tipped with roundish ovate, compressed, didymous, erect anthers. Ovaries many, glabrous, roundish, obtuse; the style attached laterally, terminated by an obtuse stigma. Fruit consists of several small carpels, seated on a small depressed hairy receptacle; they are ovate, obscurely wrinkled, and smooth. (Plate XLV., fig. 1: (a) calyx, natural size; (b) stamens; (c) pistil.)

Distribution.—Europe (Arctic), Western Siberia, Azores. Common on heaths and dry pastures in Britain. Flowers June to September.

Etymology.—Tormentilla is derived from *tormina*, a pain or griping, in allusion to the use of the plant in dysentery. It has also been called Heptaphyllum and Septfoil, from the seven divisions of the lower leaves.

Properties and Uses.—The root, except in its recent state, when it is faintly aromatic, is inodorous; it has a slightly bitter, and very astringent styptic taste. They have been used in tanning, and were at one time considered superior to oak bark. In the Orkneys, and the western isles of Scotland, they are boiled in water, and the leather is steeped in the cold liquor. Leyser observes that the inspissated red juice of the root may be conveniently substituted as a dye for dragon's blood. The roots also, with the addition of alum and the berries of the common guelder rose (*Viburnum Opulus*), will dye leather of a red colour. Linneus, in his *Flora Laponica*, says, "By masticating the root, and rubbing in the saliva with their fingers, the Laplanders dye of a red colour the skins which they use as a part of their clothing." Swine are said to be fed upon the roots in Killarney. The foliage is sometimes eaten by cows, goats, sheep, and swine, but is refused by horses. On account of the astringency of the root, it has been much employed in diarrhoea and hemorrhages. Some of the ancients considered it sudorific and alexipharmic, and beneficial in the plague and other malignant diseases. Vesalius considered it equal to guaiacum and sarsaparilla in the cure of syphilis. It has also been highly recommended in fevers, small-pox, measles, etc., especially when accompanied with great relaxation. Dr. Cullen considered it useful, both by itself or combined with gentian, in intermittent fevers. The older physicians considered it to act in a peculiar manner upon the acidities of the stomach and bowels, and to cleanse them from the slimy mucus and sordes with which they were loaded. Externally, it has been used as a gargle for relaxed uvula, ulcers of the mouth, etc. A piece of lint constantly soaked in a strong decoction of Tormentil, and placed over warts, has had the reputation of being an effectual cure.

CLXXVIII.

VALERIANA OFFICINALIS, L.

OFFICINAL, OR GREAT WILD VALERIAN.

Nat. Ord. VALERIANEÆ.*F.* VALÉRIANE. *G.* GEBRÄUCHLICHER BALDRIAN.

Description.—Root perennial, composed of long, slender, fleshy, whitish or dusky brown fibres, united into a head, and sending out long creeping shoots from the crown. Stems straight, erect, fistular, striated, yellowish green, glabrous or slightly hairy, 2 to 4 feet high. Leaves opposite, petiolate, distant, decreasing in size towards the summit, usually divided into 7 or 8 pairs of lanceolate serrated leaflets, and an odd one, deeply veined, dark green above, paler beneath, and bearded at the base. Flowers in terminal corymbs, which at length become paniculate, with lanceolate, connate, waved, pale bracts at the base of the peduncles. Limb of the calyx small and involute during æstivation, finally expanding into a feathery pappus crowning the fruit. Corolla pale flesh-colour, funnel-shaped, with a small lateral protuberance at the base; limb divided into 5 obtuse, nearly equal segments. Stamens 3, with subulate filaments, longer than the corolla, crowned with roundish oblong, yellow anthers. Ovary inferior, oblong, supporting a slender style, rather shorter than the filaments, tipped with a trifid bearded stigma. Fruit smooth, ovate-oblong, purplish, crowned with a feathery pappus of 10 or 12 rays, containing a single oblong seed. (Plate XLV., fig. 2: (a) root; (b) longitudinal section of the flower, to show the stamens; (c) fruit.)

Distribution.—Europe (Arctic), Siberia, Dahuria, Japan, Western Asia. Moist woods and banks of streams in this country. Flowers June to August.

Etymology.—The generic name is derived either from Valerius, who is said to have discovered the virtues of the plant, or more probably from *valere*, to be in good health, in allusion to its medicinal properties. This species was for some

time regarded as the *ρov* of Dioscorides, but Sibthorp has proved that to be a distinct plant, which he has named *Valeriana Dioscoridis*. It is called, provincially, Capons-tail, Setwall, and All-heal.

The plant is known under several varieties according to the situation it inhabits. "In England, Valerian is cultivated in many villages near Chesterfield in Derbyshire, the wild plant which occurs in the neighbourhood not being sufficiently plentiful to supply the demand. In Vermont, New Hampshire, and New York, as well as in Holland, the plant is grown to some extent. It is propagated by separating the young plants which are developed at the end of runners emitted from the rootstock."—*Pharmacographia*, p. 337.

Properties and Uses.—The leaves of *V. officinalis* are eaten by cows, but are not relished by sheep. Cats are well known to be delighted with the roots; rats are said to be equally fond of them, and they have hence been used for the purpose of enticing those animals to their destruction. The root has a peculiar, strong, penetrating, to most persons disagreeable odour, and a warm, bitter, subacid and slightly saline taste, compared to that of newly tanned leather, or of Asarabacca root. The saturated watery infusion is of a red colour, and has the odour and taste of the root.

Valerian-root has had a reputation for its medicinal virtues from an early period. It appears to have been given with most success in epilepsy, for which Fabius Columna first recommended it, having experienced its beneficial effects in his own person. Subsequently it has attracted the attention of numerous observers, as Cruger, Lentilius, Schuchmann, Riverius, Sauvages, Scopoli, Marchant, Chomel, and Tissot, with whom it has proved successful both in children and adults. It is not a little remarkable that Valerian has been very efficacious in epilepsy produced by anger, fear, etc. It is, however, to be expected that in some instances it should afford no benefit, as related by Rocher and Alibert. In putrid and intermittent fevers it has also been highly recommended. Dr. Withering remarks that it is an excellent medicine in cases of habitual costiveness, having afforded relief when stronger purgatives were ineffectual.

Gerard says, "It is put into counterpoysons and medicines preseruatiue against pestilence; whereupon it hath been held (and is to this day among the poore people of our northerne parts) in such veneration amongst them, that no broths, pottage, or physicall meats are worth any thing, if Setwall were not at an end; whereupon some woman poet or other hath made these verses:—

"They that will haue their heale,
Must put Setwall in their keale."

Externally, the volatile oil has been used as a liniment to paralysed limbs. The powdered root, mixed with snuff and used as an errhine, is stated to have proved serviceable in weakness of sight. It has been in high repute with the peasantry as a remedy for wounds, cuts, etc.

At the present time Valerian-root, or rhizome, is used as a stimulant and antispasmodic. As seen in the shops it is in short pieces about the thickness of the little finger.

CLXXIX.

VERBENA OFFICINALIS, L. VERVAIN.

Nat. Ord. VERBENACEÆ.

F. VERVEINE, HERBE SACRÉE. *G.* EISENKHART.

Description.—Root perennial (sometimes biennial), tapering, fibrous, yellowish. Stems upright, tapering, purplish, obsoletely tetragonal, hard, rough at the angles with short prickly hairs, simple, or dividing into opposite slender branches, 1 to 2 feet high. Leaves opposite, shortly petiolate, ovate-oblong, or lanceolate, pinnatifid, dull green, rough with short scattered hairs; uppermost sometimes trifid or simple; segments incised obtuse, terminal one largest. Flowers small, sessile, with a short acute bract at the base of each, disposed in filiform somewhat paniculate spikes. Calyx tubular, angular, pubescent, permanent, with 5 teeth, 1 truncate and shorter than the rest. Corolla funnel-shaped, with an incurved tube, and a

spreading limb divided into 5 short, rather unequal, rounded lobes, pale or whitish violet. Stamens 4, didynamous, included, with very short filaments tipped with roundish anthers. Ovary small, quadrangular, supporting a filiform style terminated by an obtuse stigma. Fruit consists of 4 oblong concrete nutlets, brownish, convex, and reticulated in front, white and nearly plane at the back, enclosed at first in a thin membrane, which fades at the maturity of the seed. (Plate XLIV., fig. 3: (a) lower leaf; (b) entire flower; (c) calyx and bracts; (d) corolla, opened to show the stamens; (e) pistil; (f) fruit, natural size; (g) the same, magnified; (h) nutlets.)

Distribution.—Europe from Denmark southwards, Northern Africa, Western Asia to the Caspian and Himalaya. Introduced in North America. On dry waste ground and road-sides in some parts of England and Ireland: not found in Scotland. Flowers July to September.

Etymology and History.—The name *Verbena* is said by Théis to be derived from the Celtic *ferfaen*. Some have fancifully considered it a corruption of *Veneris vena*, and others of *herbena*, this term being applied by the Romans to several plants, as laurel, olive, myrtle, etc., used to adorn the altars. Hence Virgil—

“Verbenasque adole pingues et mascula thura.”—*Ecl.* viii. v. 65.

and Terence in *Andria*,

“Ex arâ hac sume Verbenas tibi.”

In Virgil's 4th Georgic, however, *Verbena* is used to signify a distinct plant. The description given by Dioscorides of his *αερα βορανη* agrees tolerably well with this plant. Provincial names of the Vervain are, as Gerard informs us, Holy Herb, Juno's Tears, Mercury's Moist Blood, Pigeon's Grass, and Columbine.

Vervain was not only employed, as above mentioned, to adorn the altars for sacrifice, but was worn as a chaplet by heralds who were commissioned to announce peace or war; and it is said to have been used in the league between Tullus Hostilius, the third king of Rome, and the Albans. It was also used by magicians in their enchantments, and by the

Druids in their sacred rites, and was gathered by them with nearly as much superstitious reverence as the mistletoe. It likewise formed a celebrated ingredient in love philtres, and was dedicated to Isis, the goddess of birth.

Properties and Uses.—Vervain is inodorous, and has a slightly bitter and astringent taste, which it yields by infusion. The foliage is eaten by sheep, and the flowers are visited by bees. Few plants have enjoyed greater reputation among the ancients than the Vervain, and have so completely lost it in modern times. It is probable that the medicinal use of the plant originated in its employment for sacrificial and cabalistic purposes. We will merely enumerate a few of the diseases in which it has been extolled:—jaundice, dysentery, gout, ague, calculus, inveterate coughs, diseases of the throat, ulcers, ophthalmia, wounds. It was frequently worn suspended round the neck as an amulet; and Forestus relates a remarkable instance in which the bruised root worn in this manner cured a most inveterate headache. Ettmuller and other more recent authors recommend a cataplasm of the bruised plant to be applied to the head; and in this way, with the internal use of the distilled water, Hartmann and De Haen relate that they had cured several cases of severe headache.

Rejecting all the fabulous assertions respecting this plant, we can only admit that the expressed juice and the extract may be, to a certain extent, febrifuge, as stated by Tournefort and Chomel; the infusion may also be serviceable as a collyrium to weak and inflamed eyes, as a gargle in sore throat, and possibly as an astringent lotion to slight ulcers and tumours; but we have many preferable remedies.

CLXXX.

VIOLA ODORATA, L. SWEET VIOLET.

Nat. Ord. VIOLACEÆ.

F. VIOLETTE. G. VEILCHEN.

Description.—Root perennial, woody, creeping, yellowish white colour, with numerous filiform descending fibres, sending out from the crown slender, creeping, and rooting scions. Leaves all radical, on long, smooth footstalks, roundish cordate, crenate, nearly glabrous, dark green above, paler beneath, and pubescent on the nerves; with radical, membranous, lanceolate, serrate stipules. Flowers solitary and pendent on a scape or peduncle, which is filiform, nearly quadrangular below, longer than the leaves, and furnished with 2 small lanceolate opposite bracts, situated above the middle. Calyx of 5 ovate-oblong, obtuse, glabrous, persistent, purplish sepals, protuberant at the base. Corolla deep purplish blue or white, composed of 5 unequal, obovate, rounded petals; the 2 lateral marked with a hairy line towards the base; lower one slightly keeled, and produced at the base into a conical, obtuse, incurved spur. Stamens inserted on a 5-toothed torus, with short filaments, supporting connivent 2-celled anthers, terminated by an ovate orange-coloured membrane; the 2 superior filaments are produced beyond the anthers into subulate, compressed, greenish appendages, which intrude within the spur. Ovary superior, conical, supporting a clavate twisted style, terminated by a hooked stigma. Fruit a turgid obtuse capsule, 3-angled, 1-celled, 3-valved; the valves contract elastically and eject the seeds. Seeds numerous, turbinate, glabrous, whitish. (Plate XLVI., fig. 2: (a) anthers; (b) pistil; (c) fruit; (d) capsule opened to show the seeds.)

Distribution.—Europe, Northern Africa, Northern and Western Asia, to the Himalaya. Well known in woods, pastures, and hedge-banks in some parts of England, where it occurs as a native, and in other parts naturalized. Flowers March to May.

Etymology.—Various have been the etymologies proposed for the word Viola. The most probable is from the Greek *iov*, so called from its being the fabled food of Io, a favourite of Jupiter. The *iov* of Dioscorides is doubtless our Sweet Violet. The ancient poets frequently mention the Violet. The White Violet was the emblem of a hapless lover.

"Pallentes violas et summa papavera carpens."

VIRG. *Ecl.* ii. v.

"Nec tinctus viola pallor amantium."

HOR. *Carm.* l. 3. Od. x.

Pliny speaks of three kinds of Violets, purple, yellow, and white. The Violet is always considered an image of modesty, and by some of our old English poets is spoken of as an emblem of faithfulness, as by the author of a sonnet published in 1584:—

"Violet is for faithfulness,
Which in me shall abide,
Hoping, likewise, that from your heart
You will not let it slide."

The beautiful allusions of Shakspeare have never been surpassed:—

"Violets dim,
But sweeter than the lids of Juno's eyes,
Or Cytherea's breath."

Winter's Tale.

"Like the sweet south
That breathes upon a bank of Violets,
Stealing and giving odour."

Twelfth Night.

Properties and Uses.—The odour of the petals is remarkably fragrant and agreeable, but is lost in drying; to the taste they are very slightly bitter and mucilaginous; when chewed, tinging the saliva blue. The leaves and root are mucilaginous, and rather nauseous to the taste. The petals yield their colour and flavour to boiling water.

Dioscorides recommends the flowers for the treatment of epilepsy in children, and Baglivi in nervous and convulsive diseases. More recently they have been used for their slightly anodyne effects in inflammatory diseases of the chest, and of

the mucous membranes. Whether recent or dried they are slightly bitter and mucilaginous; hence their purgative quality mentioned by various authors, and which Pechlin ascribes to them when eaten as a salad; Mesue to the juice; Poterius to a drachm of them in powder. The syrup of the flowers has been recommended as a suitable laxative for children. The herb is emollient, and consequently has been used in cataplasms, clysters, and fomentations, as a substitute for marsh mallow, etc. The seeds in emulsion have been accounted diuretic, and have been in some repute for expelling gravel and urinary calculi. They are praised by Scholzius, Ray, Lauremberg, and others, but are not used in the present day. The root was said to be similar in its properties to ipecacuanha, and has had some reputation as a purgative. A conserve made with one part of the flowers and two of refined sugar, has a grateful flavour, and may be used in flavouring nauseous or insipid drinks for the sick.

We may here observe that the Heart's Ease (*V. tricolor*) was highly praised by the ancients in cutaneous diseases, and it is remarkable that the bruised plant, especially the root, has an odour approaching to that of peach kernels or prussic acid. It has the purgative and subemetic properties of the Sweet Violet. Murray considers the Dog Violet (*V. canina*) entitled to the character of a mild evacuant.

CLXXXI.

JUGLANS REGIA, L. WALNUT.

Nat. Ord. JUGLANDACEÆ.

F. NOYER. G. WALLNUSS.

Description.—A large handsome tree, with many spreading branches covered with a greyish bark, smooth when young, thick and cracked when old. Leaves large, alternate, petiolate, winged, consisting of 7 or 9, sometimes of 5 leaflets, ovate or ovate-oblong, glabrous, acute, nerved, veined, entire, rarely

serrated, bright green. Male flowers in long, cylindrical, pendent, brownish green spikes, each flower with a rhombic bract, inserted into the lower surface near the end; calyx 7-parted, with roundish segments; stamens about 18 or 20, filaments short, supporting erect, oblong, 2-celled anthers. Female flowers 2 or 3 together, nearly sessile, situated near the extremity of the boughs; calyx an obsolete margin crowning, the ovary, mostly of 4 erect, evanescent, short segments; corolla 4-parted, with ensiform, fleshy, green petals. Ovary oval, supporting a bipartite style, terminated by large, reflexed, indented, lacerated stigmas. Fruit a large globose-oval drupe, exhibiting, under a smooth, light-green, thick, fleshy covering, or sarcocarp, an oval-roundish nut, reticulated with furrows externally, inclosing a white, four-lobed, irregularly sinuated nucleus. (Plate XLV., fig. 3: (a) spike of male flowers; (b) flower, isolated; (c) group of female flowers; (d) female flower, magnified; (e) longitudinal section of the fruit.)

Distribution.—Greece, Asia Minor, Persia to the Himalaya and China. Largely cultivated in Cashmere, as well as in various parts of Europe, including Britain. Flowers April and May. Fruit ripens about the end of September.

Etymology.—It has been imagined that the tree called by Theophrastus *καρνον* is our Walnut, but his description is too vague and incomplete to enable us to pronounce with certainty. It was named *καρνον βασιλικον*, *Nux regia*, and *Juglans*, from *Jovis glans*, the Nut of Jupiter, by way of pre-eminence. Walnut is derived from the German *Walschnuss*, signifying foreign nut.

Properties and Uses.—The Walnut is valuable both as a fruit and timber tree. Before the introduction of mahogany the plain wood was much employed in the manufacture of household furniture, but it is now chiefly used in this country for gun-stocks, being lighter in proportion to its strength and elasticity than any other wood. The figured wood is very extensively used in the finer kinds of cabinet work. The fruit in its green state is commonly used as a pickle, and the kernel of the ripe fruit is well known as a dessert nut. It also affords, by expression, an oil resembling that of almonds, useful to

painters; and the marc left after expression is a nutritive food for animals. The unripe fruit is used on the Continent as an ingredient in various dishes, and is made into a confection with sugar and aromatics. Moreover, the root, leaves, and rind of the fruit afford a yellowish colour in dyeing, and the infusion of the leaves is useful for destroying worms and various insects. The trunk, by incisions made in the spring, yields a saccharine and mucilaginous sap, which, by fermentation, constitutes a pleasant wine, and on evaporation affords a sugar similar to that from beet-root, and which will crystallize, it is said, as well as that from the cane.

The fleshy covering, or rind, of the fruit is manifestly endowed with tonic and astringent properties. The excitation it produces upon the stomach is sometimes sufficient to produce vomiting, as observed by Ray, Schroeder, and Büchner. In general it acts upon the intestinal canal, promoting its contractions, and thus expelling worms. It was renowned in ancient times as an anthelmintic, and its powers in this respect have been confirmed by Plater, Fischer, and others. The expressed juice diluted, or the decoction, has been used as a gargle in relaxation of the uvula, inflammation of the tonsils or palate, ulcers in the mouth and throat, and to swollen gums. In powder it has also been recommended to sprinkle over atonic and sordid ulcers. The juice, mixed with honey, is said to be a good application to aphthous ulcers, and forms with vinegar a useful gargle.

The inner bark is reputed to be strongly cathartic and emetic. The thin epidermis of the kernel is styptic, like the rind, and has analogous though less powerful effects. The oil expressed from the kernel has been recommended for external application in leprous and other cutaneous affections.

CLXXXII.

NASTURTIIUM OFFICINALE, Br. WATER-CRESS.

*Nat. Ord. CRUCIFERÆ.**F. CRESSON. G. BRUNNENKRESSE.*

Description.—Root biennial or perennial, long, creeping, branched, with numerous tufts of long, white slender fibres. Stems thick, fistular, glabrous, cylindrical, branched, rooting, 2 to 4 feet high. Leaves alternate, pinnate, consisting of 3 to 6 pair of distant leaflets, and an odd one; lower ones large, ovate, somewhat cordate, terminal leaflet larger and rounder than the rest; cauline ones subovate; they are all glabrous, rather succulent, and more or less lobed and toothed. Flowers in short, somewhat corymbose racemes, elongating as the fruit ripens; pedicels filiform, without bracts. Calyx of 4 glabrous, ovate, deciduous, rather spreading sepals. Corolla cruciform, of 4 rounded, spreading, white petals, twice as large as the calyx. Stamens tetradynamous, with subulate white filaments and 4 glands at the base, and terminated by simple 2-celled anthers. Ovary elongated, cylindrical, with a very short style, and an obtuse capitate stigma. Fruit a pod, or silique, about an inch long, slightly compressed and curved, pedicellate, spreading, or somewhat declined, divided into 2 cells, separated by a partition, opening by 2 concave revolute valves, and containing several small rounded seeds arranged irregularly in 2 series. (Plate XLVI., fig. 3: (a) entire flower, magnified; (b) stamens and pistil; (c) silique, or pod.)

Distribution.—Europe, Western Asia, Northern Africa. Very common in brooks and rivulets in this country. Flowers May to October. It has been introduced into North America, and the British Colonies. In New Zealand the stems grow as thick as the wrist, almost choking some of the rivers.

Etymology.—The generic name is derived from *nasus tortus*, a convulsed nose, in allusion to the acrid and pungent effects of the juice of the plant. Bauhin and Sprengel consider the *Nasturtium officinale* the *σισυμβριον ιεπερον* of

Dioscorides; which others refer to the Lady's Smock (*Cardamine pratensis*).

Properties and Uses.—The foliage of Water-cress has a pungent taste, with a very slight bitterness; and when bruised, its exhalations are volatile and acrimonious, affecting the eyes and nose, like bruised mustard-seed, but in a milder degree. Water-cress is well known as an agreeable and wholesome esculent, and is cultivated extensively in the neighbourhood of London, as well as in other parts of England. Large quantities are brought daily throughout the season to the London market. A running stream of clear water is essential to its successful cultivation. It is sometimes also cultivated in gardens where it can be frequently irrigated; but when thus raised, it is far inferior to that which grows in clear rivulets.

As an article of diet, Water-cress is very suitable for persons of a lymphatic temperament, where the skin is colourless, and the flesh moist and flaccid, and particularly for those subject to scorbutus or exposed to debilitating causes. In a more strictly medicinal light, it has been esteemed, in addition to its antiscorbutic virtues and its stimulating effects upon the digestive organs, as sialagogue, diuretic, and diaphoretic, and has been highly recommended in tertian fevers, obstructions of the viscera, chronic catarrhs, calculus of the kidneys, and embarrassments of the bladder, as well as in dropsy, melancholy, hypochondria, hysteric affections, etc. In fine, this plant, though less powerful, nearly agrees with the scurvy-grass (*Cochlearia officinalis*), with which it has been often combined, as with other warm antiscorbutic plants.

Externally, the bruised plant has been applied with reputed benefit to white swellings. The juice, frequently injected into the nose, is said by Schroder and Ettmuller to cure mucous polypi, and mixed with vinegar and used in the same way, to be useful in rousing lethargic patients. The bruised herb, in the form of cataplasm, has also been applied to scald-head and tetters of children.

A great deal has recently been written about the medicinal virtues of the Water-cress; it is certain that it is a very wholesome plant of an antiscorbutic character.

CLXXXIII.

RUMEX HYDROLAPATHUM, Huds. WATER-DOCK.

Nat. Ord. POLYGONEE.*F.* PATIENCE AQUATIQUE. *G.* WASSERAMPFER.

Description.—Root perennial, large, thick, knotty, branched, reddish black externally, whitish internally, furnished with numerous long shaggy fibres. Stem erect, cylindrical, striated, smooth, leafy, branched at the summit, 3 to 6 feet high. Lower leaves large, spreading, lanceolate, acuminate, somewhat cordate at the base, often a foot and a half long, slightly toothed and waved at the margin, rather glaucous, with strong channelled petioles frequently a foot long, subtended by a small tubular, scariose stipule; cauline leaves gradually smaller, the uppermost linear-lanceolate, acuminate, more entire at the margin, and tapering into short petioles; veins of the larger leaves very prominent, and nearly at right angles with the midrib. Flowers in close spurious whorls, subtended by scariose bracts, forming a sort of panicle; each flower pendulous, on a slender peduncle thickened at the apex. Calyx of 3 small, ovate-oblong, acute, rather concave, erect, glabrous sepals, slightly cohering at the base. Petals 3, ovate, obtuse, entire, greenish, veiny, longer than the sepals, and enlarging over the fruit. Stamens 6, with short setaceous filaments, tipped with oblong 2-lobed anthers. Ovary superior, triquetrous, glabrous, supporting 3 very short setaceous styles with pencilliform dependent stigmas. Fruit a triquetrous smooth nut, enclosed in the valves, which at the period of maturation are large, ovate-deltoid, veined, entire or very slightly waved at the margin near the base, and have each an oblong, greenish white, or purplish tubercle, extending down the middle. (Plate XLVI, fig. 4: (a) ripe fruit, with the enlarged petals or valves; (b) pistil, magnified; (c) nut; (d) cluster of flowers in the early period of growth; (e) one of these flowers, slightly magnified.)

Distribution.—Europe, common in England, by ditches and margins of rivers; rare in Scotland and Ireland. Flowers July and August.

Etymology.—The origin of the generic name has been already explained under *SORREL*. The specific term *Hydro-lapathum* is a compound of *υδωρ*, water, and *λαπαθον*, dock; the latter being derived from *λαπαζω*, to evacuate, in allusion to the aperient qualities of some of the species. *Muntingius* and some others have supposed that the great Water-dock is the *βρεταννικη* of *Dioscorides*, and the *Herba Britannica* of *Pliny*.

Properties and Uses.—The fresh root has a slightly fragrant odour; and is at first of a reddish colour internally, but soon changes to a yellowish or yellowish brown hue by exposure to the air. It has a very astringent, austere, and bitter taste. The leaves are acescent and somewhat styptic. *Muntingius*, a professor of botany and medicine at *Groningen*, wrote a treatise in which he endeavours to prove this plant to be the true *Herba Britannica* of the ancients; and in addition to the resemblance in their external characters, he adduces instances of the efficacy of the Water-dock in stomacace, scelotyrbe, and putrid ulcers of the mouth and tonsils, in which affections the plant before mentioned was extolled by *Dioscorides* and *Pliny*. He also contends that the term *Britannica* is not derived from the name of our island, but from the Teutonic words *brit*, to consolidate; *tan*, a tooth; and *ica* signifying ejection, expressing its power of fastening loose teeth, or of curing the disease which makes them loose. More recently *Linneus* pronounced his favourable opinion of its effects in scorbutic diseases, both for internal and external application. Lotions and gargles prepared from the roots are said to have been used with success in ulcerations of the tongue and mouth, relaxed uvula, sore throat, etc.; and the root, finely powdered, is reputed to be an excellent dentifrice, strengthening the gums, removing sordes, and obviating putridity; for this purpose, according to *Murray*, it is a common article of the toilet with the Swedish ladies. The green leaves were likewise applied externally, with the same intention as the root.

The plant has now no acknowledged place in medicine, and, indeed, was but little thought of at the period when the

original edition of this work was published; yet the authors considered it possessed of great powers as a remedial agent, so that it might be employed in various cutaneous diseases; also in that depraved habit of body which in many of its symptoms resembles scurvy; in obstructions of the viscera, hemorrhages, hypochondriasis, dyspepsia, and a weakened relaxed state of the bowels. They also considered that other native species of Dock, as *R. sanguineus*, *obtusifolius*, and *crispus*, were undoubtedly useful, particularly in cutaneous diseases.

CLXXXIV.

CENANTHE CROCATA, L. HEMLOCK WATER-DROPWORT.

Nat. Ord. UMBELLIFERÆ.

F. CENANTHE À SUC JAUNE. G. REBENDOLDE.

Description.—Root perennial, fasciculated, of several large fusiform tuberous bodies, with long fibres, and exuding an acrid, fetid, yellow juice. Stem erect, strong, cylindrical, furrowed, hollow, smooth, tinged with yellowish red, much branched, (when wounded, exuding, like the root, a yellowish juice), 2 to 5 feet high. Leaves large, bipinnate, pinnæ wedge-shaped or somewhat deltoid, trifid or quadrifid, incised and deeply serrated, smooth, veined, deep green; uppermost somewhat pinnatifid. Flowers in terminal spreading umbels, of many rays; umbellules of numerous rays, subglobose; outermost flowers irregular, pedicellate and sterile; those of the centre regular, nearly sessile, and fertile. Leaves of the involucre and involucrel various in number and form; those of the former usually about 5 and deciduous, of the latter, more numerous and small. Calyx small, permanent, with a 5-toothed margin, somewhat accrete after flowering. Petals white or tinged with purple, slightly radiant, obcordate, emarginate, and inflexed at the point. Filaments slender, tapering, longer than the petals, tipped with oblong brownish anthers. Ovary inferior, ovate-oblong, supporting 2 subulate, reddish, erectly

spreading styles, terminated by acute stigmas. Fruit linear-oblong, crowned by the permanent calyx and elongated styles, separable into 2 carpels, (marked with 5 obtuse ridges, of which the 3 intermediate ones are slender), each containing a terete convex seed. (Plate XLV., fig. 4: (a) floret of the circumference; (b) floret of the centre or disk; (c) fruit.)

Distribution.—Europe, from France to Spain and Italy. Frequent in marshes and ditches in this country. Flowers in July.

Etymology.—*Oivarθη* is a term applied by Theophrastus and Dioscorides to some plant of the umbelliferous kind, and is derived from *οινη*, the vine, *αρθος*, a flower, alluding, it is supposed, to the vinous smell of the blossoms. Matthioli, in his *Commentary*, first applied the name to this genus. Lobel compares this species to the hemlock, referring, we suppose, to some resemblance in its appearance or effects. It is probably on account of its poisonous properties that it still retains the name Hemlock Water-dropwort, as the foliage, both in appearance and odour, has more resemblance to celery than to hemlock, and the roots are more similar to parsnips; and these circumstances have been productive of unfortunate mistakes. Johnson (*Ger. Em.* p. 1060) states, that in his time the roots were sold for those of peony, and were daily vended in Cheapside by the name of Water Lovage.

One of its old names, Filipendula, alluding to the fasciculated tuberous roots, has suggested the common name Dropwort,—also applied to the *Spiræa Filipendula*, a very different plant, which has, however, the same kind of root. Provincial names of this plant are Dead Tongue, Horse-bane, and Five-fingered Root.

Properties and Uses.—The roots have not any very disagreeable smell or taste, but contain a virulent, poisonous, milky juice, which becomes yellow immediately it is exposed to the air, and which exudes, though less plentifully, from all parts of the herb, when wounded.

The plant has been introduced into this work chiefly on account of its poisonous properties, its value as a remedial agent being undetermined and uncertain. The only recorded case of

its internal use is that given by Dr. Pulteney, of a man who, from the age of fifteen to forty, was affected with a most severe cutaneous eruption which had resisted every proposed remedy. At length he was recommended to take the juice of this plant, and before he had taken it a month, "he was sensible of a very great change for the better; and by persisting in it for some time longer, his symptoms were almost entirely removed. It deserves to be remarked, that this juice never purged, although, even in its reduced dose, it never failed to occasion vertigo, nausea, and sickness, which were soon relieved if vomiting supervened. After he had thus far recovered, he desisted from the juice, but drank every morning for breakfast an infusion of the leaves. This infusion neither excited nausea nor sickness, but always brought on a slight degree of vertigo. The only sensible operation he could observe from the plant was, that it produced an increased flow of urine, in which there was a copious sediment."

With regard to its poisonous properties, many deaths have been recorded from mistaking the leaves for those of parsley, and more particularly from the resemblance that exists between its roots and those of the skirret (*Sium Sisarum*); besides which, its odour is not so unpleasant as to deter the unwary from eating it. The following are some of the recorded instances of its baneful effects.

Three French prisoners, being in the fields near Pembroke, ate a quantity of the plant, which they took for wild celery, with bread and butter. One of them was soon after seized with violent convulsions, and died in a short time. The other two, ignorant of the danger, gave some of the roots to eight of their companions, and in a few minutes were attacked themselves, in the same manner as the first; one of them died; the other was cured by bleeding and emetics, but for some time he experienced a dizziness in the head, though his stomach was not disordered. The others, by similar treatment, quickly recovered.

"At Clonmel, in Ireland, eight boys, mistaking the roots of this plant for those of skirret, ate plentifully of them; about four or five hours after, the eldest boy became suddenly con-

Violet →

vulsed, and died; and before the next morning, four of the other boys died in a similar manner. Of the three who survived, one was maniacal several hours, another lost his hair and nails, but the third escaped unhurt."—*Philosophical Transactions*, 1746, vol. xlv., p. 227.

The original authors of this work mention a case that occurred a few years before they wrote, of a gang of convicts working on the embankments near Woolwich, who dug up a quantity of the *Æ. crocata*, and as the roots are fleshy and sweetish, they were tempted to eat of them. Four of the unfortunate men died, and the rest were more or less disordered.

CLXXXV.

CICUTA VIROSA, L. WATER-HEMLOCK, OR COWBANE.

Nat. Ord. UMBELLIFERÆ.*F. CIGUË AQUATIQUE. G. WASSERSCHIERLING.*

Description.—Root perennial, very thick, hollow, whitish, annular, divided by transverse partitions into several large cells, and furnished with many fibres, in whorled fascicles. Stem erect, large, hollow, branched, leafy, slightly striated, glabrous, light green, 2 to 4 feet high; lower flowering branches alternate, shorter than the stem; uppermost opposite, longer than the stem. Leaves alternate, petiolate, biternate; lower sometimes triternate or pinnated, 12 to 16 inches long; leaflets with lanceolate, deeply serrated, nearly sessile segments; serratures whitish at the points. Umbels large, of many rays, both opposite the leaves and terminal, with an involucre of a few linear pinnatifid leaves, or wanting, and an involucrel of numerous subulate reflex-spreading leaves. Calyx divided into 5 small, ovate-deltoid, acute, spreading segments. Corolla white, or slightly tinged with green or flesh colour; of five obcordate acute petals, inflexed at the points. Filaments 5, subulate, white, spreading, longer than the petals, tipped with

didymous flesh-coloured anthers. Ovary ovate-turbinate, glabrous, supporting 2 short styles, at first connivent, erect, afterwards divaricating, terminated by simple stigmas. Fruit roundish, compressed at the sides, didymous, crowned with the teeth of the calyx, the fleshy disk and the divaricating styles, and separating into 2 carpels. (Plate XLVI, fig. 1: (a) calyx; (b) entire flower, magnified; (c) fruit.)

Distribution.—Europe (Arctic), Siberia to Kamschatka. On the margins of rivers, lakes, and ditches, in many parts of England; some parts of Scotland and Ireland. Flowers July and August.

Etymology.—*Cicuta* was a name given by the Latins to the space between the joints of a reed used as a shepherd's pipe, and hence applied to this plant, which has hollow stems. It is doubtful whether our Water-hemlock or the spotted hemlock is the *Cicuta* of Pliny, who evidently intends by that name the *κωνελον* of the Greeks, and the Athenian state-poison. Haller is of opinion that this poison was obtained from our *Cicuta virosa*, and not from *Conium maculatum*. But if the account of the death of Socrates, in the *Phædon* of Plato, be a correct and not an embellished or fictitious narrative, the same objection applies to one as to the other. It is astonishing that the Water-hemlock should be associated by some of the old botanists with *Sium*, or water-parsnip, and called by Gerard "long-leaved Water-cresses," without any allusion to its poisonous properties. This plant is generally intended by the old authors when they use the term *Cicuta*, but the spotted hemlock (*Conium maculatum*) was also called *Cicuta*, and there is reason to fear that they have sometimes been confounded. Wepfer, indeed, confounds the water-dropwort, described in the preceding article, with the present species; and it is not improbable, that the same error has been committed by others who speak of the roots being eaten in mistake for parsnips, unless, indeed, we ascribe to those who partook of them more than a common share of ignorance—the large, annular, hollow root having very little resemblance to a parsnip.

Properties and Uses.—The root, wounded in spring, pours

forth a yellowish juice, which is principally contained in the vessels of the cortical part. It has a heavy narcotic odour, and an acrid, hot taste. The lower leaves are described as having the same properties in a less degree. The foliage, when bruised, smells like celery, but is more pungent, and its flavour has been compared to that of parsley.

The properties of this plant as an internal remedy, can scarcely be said to have been essayed by any practitioner. Bergius (*Mat. Med.* i. p. 214) has the following account of his experience with it. "I have never exhibited the *Cicuta* in its recent state, but I have given pills made of the expressed and inspissated juice, and the powdered leaves to a female labouring under cancer of the breast. I began with a small dose, which was gradually increased to three drachms daily, but no sensible effect was produced. I prescribed for another person a saturated decoction of the dried herb to be applied externally; he by mistake drank the whole, amounting to four pints, within two hours, but experienced no ill effects." From this it is evident that the dried plant is effete; and if any good effect is obtained, it must be from the fresh root or its milky juice.

It is presumed to be analogous to the conium, or common hemlock, and still more energetic in its effects than that vegetable, for which, indeed, it is substituted in the Danish Pharmacopœia. We have several accounts of its empirical use externally. Thus, in an endemic disease prevalent in Westphalia, called *varen*, resembling wandering gout, in which abscesses are formed, a cataplasm of the root has been applied with success. The Siberians use it in the same form as a remedy for venereal herpes; and in pains affecting the back and ischiadic region, they rub the part with the bruised root, taking care not to touch the spine, lest the malady should be aggravated. In the same manner the Kamschatdales use it in lumbago, by rubbing the affected part before the fire. In Norway also, it is used as an external remedy for gouty pains.

The plant is more celebrated for its poisonous than for its medicinal properties. According to Withering, cows often eat it in spring, and are killed by it, but as the summer

advances, and its scent becomes stronger, they carefully avoid it. Though a certain and fatal poison to cows, goats devour it greedily with impunity, horses and sheep eat it with safety. Gmelin asserts that it is innocuous to horses, but Gadd denies this. Of its poisonous effects upon cows there can be no question. Three oxen died from eating the roots, which were thrown by the current in spring upon the banks of a river near Roslagia, in Sweden. Linneus found that a disease which carried off a great number of cattle every spring at Tornea in Westrobothnia, was occasioned by the Water-hemlock. This discovery was the more important, as the affection was of such a nature, that in flaying the animals, although yet warm, wherever their blood came in contact with the human body, it caused inflammation and gangrene, and even the exhalations from the carcasses had a similar effect. This illustrious naturalist is of opinion, that the Water-hemlock is more energetic than the spotted hemlock, and less so than the hemlock water-dropwort. The root appears to be most virulent in spring, and the foliage in summer. Wepfer relates, that the root is poisonous to dogs, wolves, and eagles, and the leaves, though less powerful, have proved fatal to geese. He observed that dogs began to stagger soon after swallowing the poison, and were dejected or agitated, and their heads trembled; after which they experienced thirst, and frequent eructations, and a greenish foam flowed from their mouth; then followed vomiting, diarrhoea, enuresis, and convulsions.

The effects of this plant upon man are those of a powerful acrid narcotic, having much affinity with the water-dropwort already delineated, although more decidedly narcotic than the latter, which Orfila therefore places among the acrids, and the Water-hemlock among the narcotico-acrids.

Wepfer tells us of eight children who ate of the root, mistaking it for parsnip. One of them quickly experienced great pain at the pit of the stomach, "*et humi prostratus urinam magno impetu ad viri altitudinem eminxit.*" He was then seized with convulsions and became insensible; the jaws were locked, the eyes rolled, and blood issued from the ears; he

had frequent hiccup and efforts to vomit, and during the convulsions the head was bent backwards, and the spine so arched that a child might have crept between the body and the bed beneath. He gradually became weaker, and his death took place about half an hour from the first appearance of the symptoms. After death the abdomen and face swelled, a slight lividness was observed near the eyes, and a greenish froth issued from the mouth. Another of the children died, and of the six who survived, a little girl had tetanic fits, followed by complete coma, which lasted for twenty-four hours.

CLXXXVI.

APIUM NODIFLORUM, Reich.

PROCUMBENT WATER-PARSNIP.

Nat. Ord. UMBELLIFERÆ.

F. BERLE NODIFLORE. *G.* SCHEIBERICH.

Description.—Root perennial, long, creeping, beset with numerous fibres. Stem procumbent, rooting, striated, jointed, thick, succulent, branched, usually floating on the water, about a foot long. Leaves alternate, pinnate, composed of 3 or 4 pair of pinnæ and a terminal one, which are ovate or elliptical, acute, sessile, nearly equally serrated; those of the radical leaves have sometimes a lobe at the base on the upper margin. Flowers in umbels, which are sessile or nearly so, and opposite the leaves, composed of 6 to 9 general and partial rays; involucre of one deciduous leaf or wanting, involucre of 5 to 7 ovate-lanceolate reflexed leaves. Calyx small and indistinct, 5-toothed. Petals 5, white, ovate, entire, slightly incurved at the apex, and somewhat radiant. Filaments 5, slender, spreading, rather longer than the corolla, and tipped with roundish anthers. Ovary small, inferior, supporting 2 short reflexed styles, terminated by obtuse stigmas. Fruit ovate-turbinate, slightly compressed laterally. (Plate XLVII., fig. 2.)

(a) entire flower, magnified; (b) fruit, natural size; (c) the same, magnified.)

Distribution.—Europe from Belgium southwards, Northern Africa. Common in this country by the sides of rivulets, lakes, and ditches. Flowers July and August.

Etymology.—The generic name originates from *apon*, the Celtic for water, in allusion to the habit of the plant.

Properties and Uses.—The fresh leaves of this plant are rather succulent, nearly inodorous, and very slightly acrid and bitter to the taste. They are reputed to be a mild antiscorbutic, diuretic, and deobstruent. The plant was formerly admitted into the London Pharmacopœia as a corrector of acrid humours, especially when manifested by cutaneous eruptions and tumours of the lymphatic system. It has long been known as a popular remedy for what are called scorbutic complaints. Dr. Withering gives an account of its successful application in an obstinate cutaneous complaint, by taking three large spoonfuls of the juice twice a day. The expressed juice has also been recommended by Dr. Underwood in those eruptions which frequently infest the faces and necks of children.

CLXXXVII.

ALISMA PLANTAGO, L. GREAT WATER-PLANTAIN.

Nat. Ord. ALISMACEÆ.

F. PLANTAIN D'EAU. *G.* FROSCHLÖFFEL, WASSERWEGERICH.

Description.—Root perennial, somewhat bulbous, covered with a whitish epidermis, and furnished with a tuft of numerous descending fibres. Stem or scape erect, obtusely triangular, naked, smooth, tinged with purple, 1 to 3 feet high. Leaves all radical, ovate, cordate at the base, acute, smooth, entire, nearly erect, slightly waved, marked with a prominent midrib, and about 6 parallel-converging secondary ribs; all on long, tapering petioles, deeply channelled, sheathing and purplish at the base. Flowers terminal on the scape, in

a long panicle of distant spreading whorls, generally of 6-branched rays in a whorl, alternately longer and shorter; peduncles obtusely triangular, with membranous, sheathing, marcescent stipules at the base. Calyx of 3 ovate, concave, spreading, striated sepals, membranous at the margin. Corolla of 3 roundish spreading petals, pale rose-purple colour, rather jagged at the edge, shrivelling, with short yellowish claws. Stamens 6, with subulate slightly incurved filaments, tipped with greenish anthers. Ovaries small, in a circle, numerous, each supporting a filiform erect style and a simple stigma. Fruit of 20 to 30 clustered, depressed, ovate, obsoletely trigonal capsules, indehiscent, each containing a single seed. Seed destitute of albumen, embryo shaped like a horse-shoe. (Plate XLVII., fig. 1: (a) entire flower; (b) the same, viewed at the back to show the calyx; (c) pistil.)

Distribution.—Arctic and northern temperate regions, Himalaya, Australia. Common in this country on the margins of lakes, rivers, and ditches. Flowers June to August.

Etymology.—The generic name is derived from *alis*, water, in Celtic. The present species has been considered by some to be the *λεμωνιον*, and *νευροιδες*, of Dioscorides, and the *Beta sylvestris* of Pliny, but there is no means of deciding the point. The common name Water-plantain refers to the resemblance between its leaves and those of the common plantain; it is also called Greater Thrumwort.

It is singular that nearly all the older botanists should have placed this plant among the Plantains, which it resembles merely in its leaves, while in natural character and qualities it has more analogy with the *Ranunculus* tribe.

Properties and Uses.—The foliage of Water-plantain is of an acrid nature, and deleterious to sheep and cattle; but, according to the Swedish experiments, it is eaten by goats and horses. The root contains an acrid juice, which being removed by expression, or dispersed by boiling, the residue is an amylaceous fecula of a nutritive character, and is said to be commonly eaten by the Kalmuc Tartars. The fresh leaves also contain an acrid principle of a fugitive kind, so that when thoroughly dried they are inert. The root was some

years since greatly eulogized, particularly in Russia, as a remedy for hydrophobia. Lewshin, Burdach, Moser, and others have, indeed, published several cases in which it acted apparently as an antilyssic, given internally to the extent of $2\frac{1}{2}$ drachms daily, and the leaves applied, in the form of poultice, to the wound. The powdered root has also been given with reputed success as a substitute for bearberry, in cases of irritable bladder; and De Haen states that the root, macerated in wine, has procured relief in calculus. The fresh leaves applied to the surface of the skin have an irritant and vesicatory effect. According to Ettmuller, they have been applied to the wrists of those labouring under intermittent fevers, with marked success; he also asserts that the same, bruised and applied to the cedematous legs of dropsical subjects, excite copious vesicles, by the puncture of which the serum is drawn off and great relief afforded.

CLXXXVIII.

SALIX ALBA, L. WHITE WILLOW.

Nat. Ord. SALICINEÆ.*F.* SAULE. *G.* WEISSE WEIDE.

Description.—A tree sometimes 80 feet high, with a straight trunk, with cinereous cracked bark; branches numerous, erectly spreading, with grey, reddish, or brownish green bark; inner bark green. Leaves alternate, petiolate, elliptic-lanceolate, acuminate, shining and pubescent above, white and silky beneath, acutely serrated, lower serratures glandulose. Male flowers in pedunculate, cylindrical, obtuse catkins, 1 to 2 inches long, subtended by a few bracts, and composed of imbricated, oblong, hirsute scales, tinged with brown and crimson; each scale including 2 stamens, with an obcordate, nectariferous gland in front, and an oblong one behind. Female flowers in slender, cylindrical catkins, on long peduncles, and consist of imbricated, oblong scales, each fur-

nished with a roundish, ovate, nectariferous gland, and a glabrous ovary, supporting a very short bifid style, terminated by 4 obtuse stigmas. Capsule glabrous, ovate-oblong, ventricose at the base, nearly sessile, 1-celled, opening at the summit with 2 valves reflexed outwards, containing a single seed, crowned with a white shining tuft. (Plate XLVIII., fig. 1: (a) male catkin; (b) single flower, with its scale magnified; (c) female catkin; (d) pistil, magnified; (e) capsule, opening at maturity; (f) seed.)

Distribution.—Europe, Northern Africa, Siberia, Western Asia, to North-Western India. Frequent in moist woods, hedge-rows, and by river-sides in this country. Flowers in May.

Etymology.—The name of the genus is compounded of the Celtic words *sal*, near, *lis*, the water. It was called *treea* in Greek, from *teva*, to be of quick growth. It is supposed to be the *treea λευκη* of Theophrastus. The Welsh name for Willow is Gwilou.

It is supposed that from the drooping aspect of the Weeping Willow, a branch or garland of the tree before us is considered emblematic of a hapless lover. Therefore it was peculiarly appropriate that the Queen in *Hamlet* should commence her description of Ophelia's death by saying—

“There is a Willow grows aslant the brook,
That shows his hoar leaves in the glassy stream;”

and that “therewith” the luckless girl should make “fantastic garlands.”

Properties and Uses.—The recent bark has a peculiar odour and a bitter astringent balsamic taste, becoming inodorous and more styptic by keeping. Its virtues are extracted by water.

The wood is very white, tough, light, and pliable, and is used for flooring, and for making chests, boxes, milk-pails, butter-firkins, and hoops for casks. It is also convertible into excellent charcoal, for gunpowder. The bark is useful in tanning, and imparts a cinnamon colour to yarn. Horses, cows, sheep, and goats eat the leaves and young shoots; and the blossoms are eagerly sought after by bees.

Passing over the praises bestowed by the ancients upon

the Willow for its good effects in diseases of the nerves, gout, hemorrhages, obstructions of the liver, wounds, etc., we find it recommended in later times as a valuable remedy for intermittent fevers. The Rev. E. Stone relates, in the *Philosophical Transactions*, vol. liii., 1763, that he gave the powdered bark in two scruple doses, repeated every four hours between the paroxysms, in fifty cases of ague with complete success. Clossius, Gunz, Coste, Willemet and others have recommended the use of the plant in similar diseases, as well as in dyspepsia, dropsy, phthisis, and hectic fever.

Externally, it has been applied, either in powder or by fomentation, to atonic, fungous, and gangrenous ulcers. Haller recommends baths made of the decoction for strengthening the debilitated limbs of children.

CLXXXIX.

ASPERULA ODORATA, L. SWEET WOODRUFF.

Nat. Ord. RUBIACEÆ.

F. ASPERULE ODORANTE, PETIT MUGUET. G. WALDMEISTER.

Description.—Root perennial, creeping a little below the surface of the soil, and furnished at the joints with several small descending fibres. Stems numerous, erect, simple, herbaceous, smooth, tetragonal, leafy, green above, purplish brown towards the base, 6 to 18 inches high. Leaves 7 to 9 in a whorl, usually 8, bright green, lanceolate, acute, rough only at the margin and on the midrib; lower ones smaller, obovate-lanceolate, commonly 7 in a whorl. Flowers in a terminal, erect, naked corymb, which is generally composed of 3 principal branches, and 4 secondary ones. Calyx a small superior margin upon the ovary, with an obsoletely 4-toothed limb. Corolla snow-white, funnel-shaped, with a very short tube and a 4-parted limb; segments ovate-lanceolate, obtuse, spreading. Stamens 4, with short white filaments, and oblong, obtuse, erect anthers, situated between the segments of the corolla.

Ovary inferior, roundish, obsoletely didymous, supporting 2 filiform styles, united above the middle, terminated by globose stigmas. Fruit rough with ascending bristles, not crowned by the calyx, separable into 2 carpels, each of which is dry, indehiscent, and contains a single seed. (Plate XLVII, fig. 4: (a) corolla, opened to show the stamens; (b) pistil; (c) fruit.)

Distribution.—Europe, Northern Africa, Siberia, Western Asia. Woods and shady places in Britain. Flowers May and June.

Etymology.—The generic name is derived from *asper*, rough, in allusion to the rough leaves of some of the species. The common name Woodruff, corrupted into Woodroof and Woodrooffe, refers to the whorled position of the leaves, like an old-fashioned ruff; also compared to the rowel of a spur, whence the names Woodrowel and Woodrow.

Properties and Uses.—It is remarkable that the fresh plant is almost destitute of odour; but when dried, it exhales a delightful and lasting fragrance, which has been compared to the odour of vernal grass, or melilot, approaching to that of peach-blossoms. It has an astringent and subsaline taste, which it imparts both to water and spirit. The plant is eaten by cows, horses, goats, and sheep, and is said to increase the milk of those animals, especially of the first mentioned. Infused in wine or beer, it imparts an agreeable flavour to those liquors; and may be kept among clothes, like lavender, as a perfume, and to preserve them from insects.

The properties attributed to this plant by the old writers are those of a diuretic, deobstruent, and vulnerary. It has been highly commended in obstructions of the liver, biliary ducts, and mesenteric glands, in jaundice, and even in paralysis, epilepsy, and hydrophobia. In exanthemata and some cutaneous affections it is also reported to have been used with advantage. Simon Pauli speaks favourably of the effects of a strong decoction of the plant, applied externally as a lotion to scabies. The fresh and bruised herb is applied by the country people to inflammatory swellings and to wounds.

The only British species of the genus besides that here

described is the Squinancy Woodruff (*A. cynanchica*), so named because of its reputed efficacy as a gargle in sore throat and quinsy.

CXC.

OXALIS ACETOSELLA, L. WOOD-SORREL.

Nat. Ord. GERANIACEÆ.

F. OXALIDE, ALLELUIA. *G.* SAUERKLEE, KUCKUCKSLEE.

Description.—Rhizome horizontal, creeping, somewhat jointed, consisting of several alternate, fleshy, ovate-gibbous, red scales, attached to a filiform axis, from which descend, at short distances, the slender radicles or fibres. Leaves all proceed from the neck of the root on long, reddish, slender, naked, slightly pubescent petioles; 3 to 4 inches high. Lamina of each leaf composed of 3 obcordate, entire leaflets, bright yellowish green, often purplish beneath, slightly hairy, spreading, drooping at night. Scapes rather longer than the leaves, from among which they spring; peduncle pubescent, erect, furnished above the middle with 2 small, ovate, scaly bracts. Flower solitary, delicate, somewhat drooping. Calyx divided into short, ovate-oblong sepals, rather membranous and ciliate at the margin, often tinged with purple. Petals 5, ovate-cuneiform, retuse, white or pale flesh colour, striated with purplish veins, attached to the receptacle by small yellowish claws. Stamens 10, with subulate, white, erect filaments, the 5 outer much shorter than the rest, tipped with roundish, sub-trigonal, innate, 2-celled, yellow anthers. Ovary superior, roundish, angular, supporting 5 filiform erect styles a little longer than the inner stamens, terminated by capitate stigmas. Fruit a membranous, spotted, 5-angled, 5-celled capsule, opening by 5 valves; each cell containing 2 or 3 seeds attached to the axis. Seeds cordate, convex, longitudinally striated, bright reddish brown, each covered with a shining white tegument resembling an arillus, which is at first closed, but at maturity

rolls back from the apex elastically and ejects the seed with considerable force. (Plate XLVII., fig. 3: (a) stamens and pistils; (b) stamen, magnified; (c) styles, separate; (d) capsule; (e) seed.)

Distribution.—Europe (Arctic), Northern Africa, Siberia, and Western Asia to the Himalaya. Eastern and Western North America. Abundant in moist shady places in Britain. Flowers April to August.

Etymology.—The generic name is derived from $\alpha\xi\upsilon\varsigma$, sharp or acid; and the specific name has a similar origin. The plant before us is probably the *oxys* of Pliny, which, he says, "*folio terna habet*." When natural history, with almost every other science, was confined to cloisters, the monks gave this plant the name of Alleluia, from its being in flower about Paschal week, when Alleluia was accustomed to be sung in churches. Another synonym, Lujula, is either corrupted from the preceding, or from the Calabrian name of the plant, Juliola. Its provincial and ancient English names are, Sour Trefoil, Woodsour, Stubwort, and Cuckoo's Meat; the latter was given it because it flowers with the singing of the cuckoo.

Properties and Uses.—This plant is quite inodorous, but has an agreeable penetrating acid taste, resembling that of lemons or tartaric acid. The foliage is eaten by goats, sheep, and swine; it is disliked by cows, and totally refused by horses. The leaves form a more elegant salad than those of common sorrel.

Wood Sorrel has had the reputation of being refrigerant, attenuating and antiseptic, appeasing thirst, diminishing febrile heat, and favouring the secretion of urine; hence it is described as being used advantageously in putrid, inflammatory, and bilious fevers. It has also been recommended in diarrhoea and bilious dysentery, and especially in acute inflammatory states of the kidneys, bladder, and urethral canal, and obstructions of the urinary passages in general. An infusion of the leaves is a pleasant drink in ardent fevers; the addition of a little nitre will increase its refrigerating and diuretic effects. Externally, the herb, wrapped in a cabbage leaf and macerated in warm ashes until reduced to a pulp, is said to have been success-

fully applied to scrofulous ulcers. A very agreeable conserve is made by beating up the fresh leaves with twice their weight of loaf-sugar. A syrup and an extract have also a place in some foreign pharmacopœias. The crystallized salt, or binoxalate of potass, dissolved in water with a little sugar, forms a pleasant drink resembling lemonade.

CXCI.

ARTEMISIA ABSINTHIUM, L. WORMWOOD.

Nat. Ord. COMPOSITÆ.

F. ABSINTHE, ALUYNE. *G.* WERMUTH.

Description.—Root perennial, rather thick, yellowish, ligneous, branched, fibrous. Stem erect, firm, angular, striated, villous, pale green, branched, leafy, 1 to 2 feet high; branches axillary, leafy, and floriferous. Leaves alternate, petiolate, doubly and irregularly pinnatifid (the lowermost nearly bipinnate), with lanceolate, entire segments, and clothed with short silky down. Flowers collected into leafy erect panicles; leaves or bracts 3-lobed, uppermost entire and linear-lanceolate; each flower pedicellate, hemispherical, drooping, brownish yellow, subtended by a linear-subulate bract. Involucre of several imbricated scales, exterior very small and subulate, inner ovate and scarious. Florets of the disk numerous, hermaphrodite, tubular, 5-cleft at the margin, with 5 short stamens and 2 large recurved styles tipped with bifid stigmas; those of the ray few, short, ovate, subulate, and including only an exerted bifid style. Fruit consists of small naked obovate, achenes, seated on a convex villous receptacle. (Plate XLVIII., fig. 3: (a) receptacle, magnified, with two scales and one floret remaining; (b) floret of the disk; (c) floret of the ray; (d) achene.)

Distribution.—Europe, Northern Africa, Siberia, Dahuria, North-Western India, North America. Waste places in this country. Flowers August to September.

Etymology.—The specific name Absinthium is derived from *αψινθιον*, and that from *a*, without, *ψινθος*, delight, probably in allusion to its very bitter taste. Wormwood seems to be an alteration of *Wormwort*, referring to its property of expelling worms.

Properties and Uses.—The odour of common Wormwood is strong, aromatic, but to many persons very disagreeable; the taste is intensely bitter, persistent, slightly pungent, and nauseous. The flowers are less bitter and nauseous than the leaves; the root is warm, aromatic, and much less bitter than the other parts of the plant. According to the Swedish experiments, Wormwood is eaten by cows, horses, and sheep, but is disliked by goats, and refused by swine. It is said to impart a bitter taste to the flesh and milk of animals that feed upon it. Its scent is reported to drive away fleas and other insects. It was formerly esteemed as a tonic, febrifuge, and anthelmintic; and externally, as a discutient and antiseptic. It has been used in intermittent fevers, combined with some aromatic, as well as in hypochondriasis, jaundice, dropsy, gout, scurvy, and worm cases. It has also been recommended in hysteria, and as an emmenagogue. Dioscorides, who commends it in several of the above-mentioned diseases, also affirms that it is a preventive of intoxication and an antidote against its ill effects; indeed, the "*poculum absinthiatum*" has long been a favourite beverage.

Externally, infusion of wormwood is by some considered a useful fomentation for inflammatory pains, tumours, and gangrene; and combined with chamomile flowers and bay leaves, it forms the anodyne *fotus communis* of the old pharmacopœia. The recent herb is said to have been applied with good effect to œdematous swellings. The infusion, with a few drops of the essential oil of the plant, is reputed to be useful in preventing the hair from falling off. The salt obtained by lixiviating and evaporating the ashes of the plant—formerly much used, and highly celebrated, by the name of "Salt of Wormwood"—is merely carbonate of potash. It was much praised as a resolvent, antacid and diuretic. A scruple of this salt, dissolved in water with a little sugar, poured upon a

spoonful of lemon-juice, constituted the famous "saline draught" used for allaying vomiting, diminishing febrile heat, and quieting nervous irritability.

CXCII.

ACHILLEA MILLEFOLIUM, L.

YARROW, OR MILFOIL.

Nat. Ord. COMPOSITÆ.

F. MILLEFEUILLE, HERBE AUX CHARPENTIERES. G. SCHAFGARBE.

Description.—Root perennial, creeping, cylindrical, with a few slender, white or pinkish, subterranean shoots, and several descending fibres. Stem erect, simple, and smooth below, towards the summit striated, woolly, and somewhat branched, tinged with reddish purple, about a foot high. Leaves sessile, alternate, elongated, semi-amplexicaul, bipinnate; pinnæ numerous, opposite; segments deeply lobed, often trifid, acute, hairy beneath; radical leaves the longest, with membranous, short, rather sheathing petioles. Flowers form a terminal, fastigate, paniculate corymb, with oblong, pubescent, pinnatifid bracts at the base of the peduncles. Involucre ovate, downy, of several imbricated, ovate, concave, downy scales, membranous and brownish at the margin. Florets of the disk about 12, small, hermaphrodite, with a yellowish tube, and a limb of 5 short revolute segments; florets of the ray 7 to 10, ligulate, white, pink, or purple, spreading, roundish, retuse, obtusely 3-toothed, and contain only a pistil, which is rather longer than the tube. Filaments 5, short and slender; anthers yellow, connected. Ovary oblong, somewhat compressed, glabrous, supporting a capillary style, and a bifid, reflexed stigma. Fruit, or achene, linear-cuneiform, brownish white, somewhat toothed at the summit, seated on a flat, chaffy receptacle. (Plate XLVIII., fig. 4: (a) flower-head, somewhat magnified; (b) floret of the ray, magnified; (c) floret of the disk, magnified.)

Distribution.—Europe (Arctic), temperate and colder parts of Northern Asia, Himalaya, North America. Common in pastures and way-sides in Britain. Flowers May to September.

Etymology.—The genus derives its name from the warrior Achilles, who is said to have discovered its virtues. One of the common names, Milfoil, is a corruption of the Latin *Millefolium*, referring to the much-divided leaves. It is sometimes called Nosebleed, as the leaves, introduced up the nose, by means of their short hairs act as a mechanical irritant and cause it to bleed, thus affording relief to the megrim, as Gerard informs us.

Properties and Uses.—The leaves have a weak, fragrant smell, and a bitterish, astringent taste. The flowers, rubbed between the fingers, have a stronger, more aromatic odour, and a bitterish, warm, somewhat pungent taste. The subterranean shoots of the root have also a pungent, rather pleasant flavour. Linneus observes, that the Dalecarnians are accustomed to infuse the leaves and flowers of this plant in beer, while in a state of fermentation, with a view to increase its intoxicating effects. Batsch employed it in tanning. It is eaten by sheep and swine, but is not relished by horses, cows, or goats.

It is considered by some to be the *Στρατιότης χυλοφυλλον* of the Greek writers, much commended by them as a styptic and vulnerary, and as an astringent in hemorrhagic complaints. They ascribed its discovery to Achilles, and pretended that by means of it he healed the wounds of his companions in arms. In later times, its reputation as a styptic and astringent has been revived by Stahl, Hoffmann, Buchwald, and Chomel, who severally recommend it in hemorrhages from the stomach, lungs, and uterus, and in dysentery. Moreover, in consequence of its volatile principle, it has been lauded in colic, cardialgia, flatulence, epilepsy, hypochondriasis, etc. It has also been called diuretic and anti-rheumatic. According to Gunner, it is much used in Norway for the cure of rheumatism.

Externally, a strong decoction of the leaves has been sometimes used to stop bleeding at the nose, as an application to hemorrhoids, and as an injection in leucorrhœa. The flowering tops, boiled in water, also form a useful anodyne fomenta-

tion, with or without chamomile. The bruised herb, or an ointment made of it, is sometimes applied by the peasantry to fresh cuts, bruises, etc.

CXCHL

TAXUS BACCATA, L. YEW.

Nat. Ord. CONIFERÆ.

F. IF. G. EIBE.

Description.—A tree ranging from 15 to 50 feet high when old, with a very thick trunk, covered with a rough, cracked, dark brown bark, which easily peels off; branches very numerous, and spread nearly horizontally. Leaves persistent, deep green, linear, acute, very entire, crowded, arranged in two opposite rows. Flowers dicecious, small, nearly sessile, axillary. Male flowers have a perianth of 6 to 8 scales, and a cylindrical column which supports several stamens, the anthers disposed circularly in the form of a buckler, and opening beneath; female flowers solitary and naked, each with an urceolate scaly perianth, and an ovary pierced at the apex with a small orifice which answers to the stigma. Fruit an ovate-globose drupe, bright red when ripe, subtended by the outer permanent scales, or bracts; the succulent covering composed of the enlarged perianth almost enveloping the nut, which is obovate-oblong, compressed, pointed, tawny, with a thin, hard, brittle shell, and a white mealy nucleus or kernel; embryo central straight. (Plate XLVIII, fig. 2: (a) leaf, natural size; (b) male flower; (c) female flower; (d) vertical section of the drupe, showing the nut; (e) nut, slightly magnified; (f) horizontal section of the seed; (g) kernel; (h) longitudinal section of the same, to show the embryo.)

Distribution.—Northern temperate regions, from the Atlas, Taurus, Himalaya, and Mexico to the arctic circle. It occurs in rocky glens and mountainous woods in this country, but is rare in a native state. Flowers in March.

Etymology and History.—*Taxus*, the name of this tree, and *τοξος*, an arrow, have probably the same origin, *τοξικα* (q. *taxica*) being with the ancients a common appellation for poisons; and it is possible that arrows in the old time were poisoned with the juice of Yew. According to Matthioli, this tree is the *συλαξ* of Dioscorides, the *μυλος* of Theophrastus, and the *συλος* of Nicander. The common name Yew is a corruption of the Celtic word *iw*, green.

The Yew-tree is mentioned by Cæsar as very common in Gaul and Germany. It was planted by our ancestors in churchyards, because of its value in the manufacture of bows, according to some; but, as Ray more correctly observes, it was there stationed as a symbol of immortality; and from its sombre aspect, it is well suited to tell "of graves, and worms, and epitaphs." A custom still exists, it is said, in some parts of Wales and Ireland, of carrying twigs of this and other evergreens at funerals and throwing them into the grave with the corpse. The bow being so important an engine of warfare in early days, and the Yew being generally allowed to furnish the best wood for that purpose, was highly valued, and various laws were enacted respecting it from the time of Edward IV. to that of Elizabeth. By a statute of the fifth year of Edward the Third, every Englishman was directed to have a bow of his own height; and the supply in this country being far too scanty, Yew was largely imported from abroad. Every ship trading with Venice was obliged to bring home ten bow-staves with every butt of malmsey.

The Yew is exceedingly long-lived, and often attains a prodigious magnitude. The Crowhurst Yew, near Hastings, is thirty feet in circumference. The noble Yew in Fortingal churchyard, at the entrance to Glen Lyon, measured, according to Pennant, fifty-six feet and a half in circumference; it still remains, though reduced to a mere shell. In Cliefden woods there are still more extraordinary remains of this tree; and one called the Hedsor Yew is said to measure twenty-seven feet in diameter.

The plant is very patient of the shears, and when the ancient style of horticulture was in vogue, it was clipped into

all sorts of shapes and forms. When allowed to take its natural shape, it is one of the handsomest of the British ever-greens, and a good shelter for tender trees and shrubs.

Properties and Uses.—The wood of this tree is resinous, and has a slight terebinthine odour. The leaves are bitter, nauseous, and slightly acrid to the taste. The succulent covering of the fruit is soft and slimy to the touch, mawkishly sweet and mucilaginous. The nut of the drupe is bitter, nauseous, somewhat austere, and slightly acrid. The wood is hard, heavy, and smooth, beautifully veined with red streaks, admits of a fine polish, and is extremely durable. Hence it is used by turners and cabinet-makers in the manufacture of spoons, cups, and various ornamental articles, and has been substituted for box in wood-engraving. On account of its strength and durability, it is also converted into cogs for mill-wheels, into axle-trees, flood-gates, etc.

According to Dambourney, a decoction of Yew berries imparts a fine chamois dye to wool previously immersed in a weak solution of bismuth. On boiling the root, together with the bark of the common birch-tree, (the wool being first boiled in a solution of tin), he obtained a beautiful cinnamon colour; which by the addition of alum, assumed a bright red colour.

The medicinal properties of the Yew appear to have attracted scarcely any attention from physicians, and the little that can be gathered respecting it is vague and unsatisfactory. Dr. Loder, indeed, published an Inaugural Dissertation in which he states that the *extractum taxi* is a useful narcotic; and he recommends it in obstinate tertians, rheumatism, epilepsy, and amenorrhœa. An Italian physician, with whose name we are unacquainted, asserts that the leaves of Yew have a power similar to digitalis over the action of the heart and arteries, diminishing the circulation; and if given in too large doses, to be as certainly fatal as that plant. Dr. Hildebrand mentions that a decoction of the wood of this tree is a favourite popular remedy in some parts of Germany for hydrophobia. According to Claudius Drusus, the juice of the Yew was esteemed by the ancients a sure antidote to the bite of the viper.

With regard to its poisonous properties, the ancient Greek writers asserted that the Arcadian Yew was destructive to those who ate of it or slept under its shade. Dioscorides, Galen, and Pliny attribute to this tree the same noxious effects, but Theophrastus affirms that the fruit is not poisonous. Matthioli states that the Yew-trees which grew in the vicinity of Narbonne had a pernicious influence upon persons who slept under their shade. Cæsar in his Commentaries relates that Cativulus, king of the Eburones, poisoned himself with the juice of Yew. Ray mentions that a gardener employed in clipping a Yew-tree which grew in a garden at Pisa, was unable to proceed with his work for more than half an hour at a time without being seized with violent pain in the head. The Jesuit Schott affirms, moreover, that the branches of this tree, plunged in a fish-pond, will stupefy and benumb the fish so that they may be taken with the hand.

There can be no doubt of the poisonous qualities of the leaves upon man and various animals. Matthioli relates from Theophrastus, that ruminating animals eat the foliage with impunity, while others are killed by it. Deer, sheep, and goats are said to eat it freely, but it is certain that horses, asses, and oxen are speedily destroyed by it: and it differs from many other plants in that the loppings or half-dead branches are equally pernicious with the recent leaves, and have been in most cases the source of accident. Several cases are on record of its virulent effects upon horses. Mr. Tatem mentions that two horses were put under a Yew-tree, which they cropped with eagerness; no unfavourable circumstance appeared for three hours, when, having staggered a few paces, they both dropped, and before the harness could be taken off they were dead. We have been informed of an instance in which the lopped and withered branches, accidentally placed in the way of a team of four horses, proved fatal a few hours after the repast, and before any assistance could be procured. Baudin and Henon, of the veterinary school of Lyons, gave six ounces of Yew leaves to a horse; he fell dead in an hour, without convulsions.

The leaves are also poisonous to the human subject. Dr.

Percival relates that the fresh leaves were administered to three children of five, four, and three years of age, near Manchester, for worms. Yawning and listlessness soon succeeded, and the eldest vomited a little and complained of pain, but the others expressed no sign of pain. They all died within a few hours of each other.

There is considerable discordancy in the statements of authors respecting the fruit or berry, as it is called, of this tree. According to Dioscorides, the fruit has the singular property of blackening the plumage of birds that feed on it, and produces abundant alvine evacuations and flux of blood when eaten by man; and Matthiolus, in his commentary upon that author, mentions that such accidents, accompanied with inflammation of the abdominal viscera, occur to shepherds in mountainous countries who partake of the fruit. On the other hand, Theophrastus states that the fruit is not poisonous. Pena and Lobel affirm, that swine feed on it in some parts of England, and that children eat it with impunity. Gerard, also, has the following remarks:—"When I was yong and went to schoole, diurs of my schoole-fellowes and likewise my selfe did eat our fils of the berries of this tree, and haue not only slept under the shadow thereof, but among the branches also, without any hurt at all, and that not one time but many times."

It is certain that the red, fleshy cup is not poisonous, and the fruit itself in small quantities is inert; in large quantities, however, the effect may be different, and cases of poisoning are recorded which have been attributed to the fruit of the Yew.

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